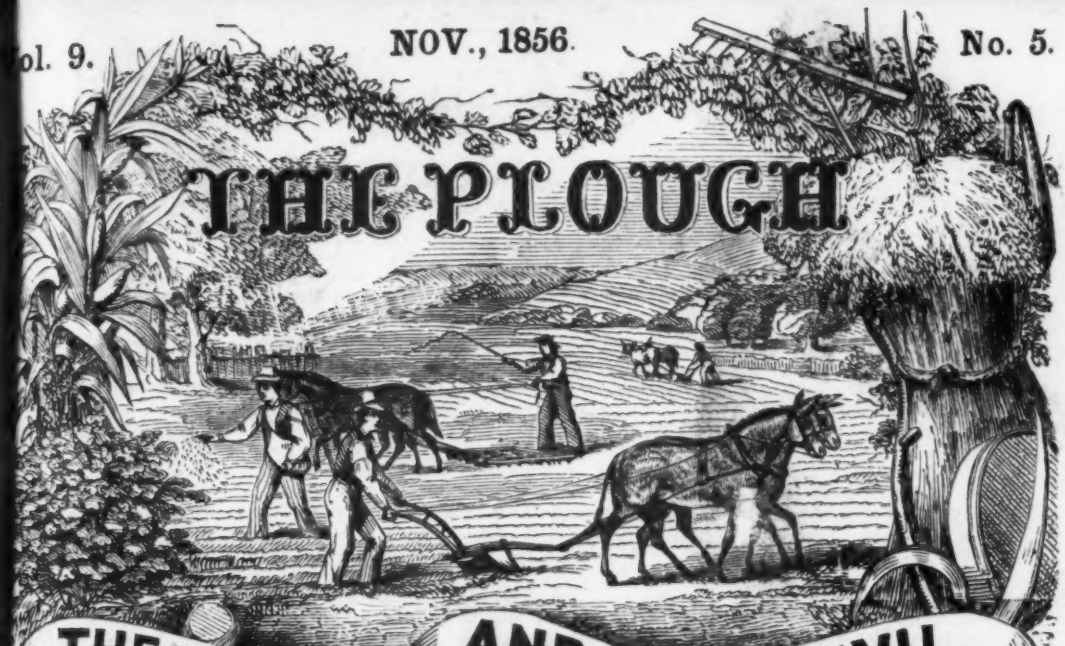
ol. 9. NOV., 1856. No. 5.

THE PLOUGH

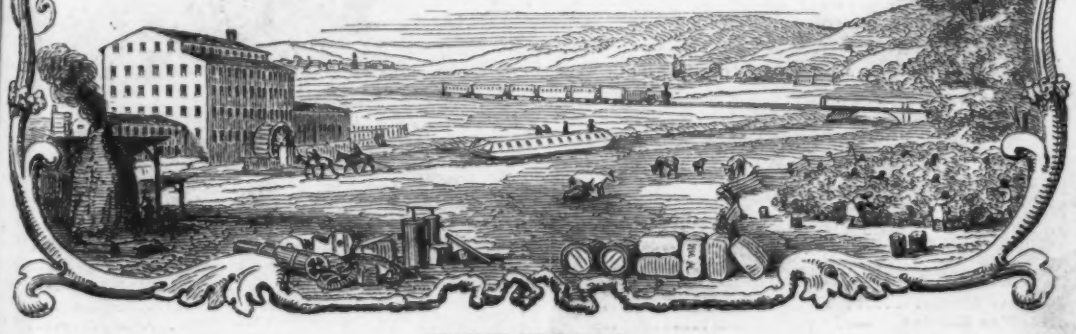


THE LOOM AND THE ANVIL.

DEVOTED TO THE INDUSTRIAL ARTS:

AGRICULTURE, COMMERCE, AND MANUFACTURES.

J. A. NASH & M. P. PARISH, EDITORS.



NEW-YORK:

OFFICE, No. 7 BEEKMAN STREET, CORNER OF NASSAU.

1856.

The Plough, the Loom and the Anvil,

Is devoted to Scientific and Practical Agriculture, Horticulture, Fruit-growing, Breeds of Animals, the care of Cattle, Horses, Sheep, Swine, Poultry, Bees, &c.; to Manufactures, the Mechanic Arts, and Improvements in Machinery; and to Commerce and Mining, in their relations to Agriculture and Mechanics. It is pre-eminently

A JOURNAL OF THE INDUSTRIAL ARTS,

In sympathy with the Farmer and the Mechanic; with the Merchant, who facilitates their mutual exchanges; and with the Inventor, whose genius usually benefits others more than himself; with the Preacher and Teacher, those promoters, par excellence, of industry, intelligence, art, science, and religion; with ALL who *labor*, whether with the *muscles*, or the *mind*, or *both*.

AS AN EXPONENT OF AMERICAN INDUSTRY,

It will prove acceptable, not only to those who have a *hand* in it, but to all who have a *heart* for its encouragement, and would learn the true sources of national prosperity. The work is issued monthly, each number containing sixty-four pages of reading matter, on fine paper and new type, done up in a style unsurpassed by any periodical in the United States, and containing frequent engravings of farm-buildings, cottages, improved implements, fruits, plants, &c., at the following

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NEW-YORK, July, 1856.

J. A. NASH,
M. P. PARISH.

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PUBLISHED WEEKLY, AT NO. 5 BEEKMAN STREET, NEW-YORK.

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Although the size of the paper has been greatly enlarged, the price remains as before: $2.00 per annum, by mail, strictly in advance; $2.50 if not paid in advance; $3.00 after the expiration of the year; $2.50 in advance when delivered by carrier.

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The Plough, the Loom, and the Anvil.

VOL. IX. NOVEMBER, 1856. No. 5.

Agricultural.

HOW SHOULD AGRICULTURAL JOURNALS BE CONDUCTED?

IN the first place, not in all respects as they have been. In saying this, no disrespect to the Corps Editorial is intended. The commendations we often bestow on our contemporaries will shield us from such a suspicion. It would ill become us to carp at the doings of veterans in the cause, while we have hardly yet entered the lists. But our older brethren will admit that there should be progress. We call upon the farmers *to go ahead*, and we should set them the example.

Farmers, it is true, should do as their ancestors did; but they should do it only so far as their ancestors can be shown to have done the *best thing*, and not only the best *for them*, but what would be the best in our *altered* circumstances. So we of the pen should not eschew the old, merely because it is old; but we should keep up with the times; should give an example of progress; should strive, from year to year, to diffuse knowledge of a higher and a more comprehensive character, than it might have been wise sooner to attempt; much as the farmer may, in many cases, wisely undertake improvements to-day, which it would have been premature to have attempted twenty years ago.

The time was, when about all that an Agricultural Editor could do was, to retail to farmers generally what the better sort of farmers already knew and practiced. This was a good work; and well has it been done. If farmer A knew how to grow or to expend a particular crop advantageously, the agricultural papers carried that knowledge to farmers B, C, D, all the way down the alphabet, and all over the country. This was well. It should still be persevered in. What one farmer knows, all should know; and agricultural papers are the proper medium for the diffusion of practical knowledge. In accomplishing this object, they have done immense good.

As a medium of communication between farmers, agricultural papers are of great value. Let farmers write for them. On many points their teachings would be worth more than those of all the world besides. In all practical matters they have a rich experience; and the

agricultural papers should convey the results of their experiments over the land. But while the retailing of practical instruction on a thousand items of agriculture, as when to plant, what seed to use, how deep to plough, what manure to apply for each plant, what food to give each animal, etc., is important, and should occupy a large portion of each paper, it has seemed to us that a higher duty attaches itself to the agricultural press—that of teaching science, not exactly as it is taught in the schools, but in a way more adapted to the habits, modes of life, and circumstances, of working farmers. We do not say that nothing of this kind has been attempted. It has. The conductors of the agricultural press have often paid generously for scientific articles. They have sometimes obtained valuable articles in return, but generally too elaborate, and not sufficiently applied to the subject in hand—better adapted to the college than to the farm. The trouble was that the writers knew nothing about agriculture; and how could they apply science to a subject of which they were profoundly ignorant? The very first requisite for a writer on this subject is, that he should know *agriculture;* he *may be* scientific; he *must be* so, if he would be capable of teaching, for no other employment involves so much science; but if he has no experience on the farm, if he has not learned agriculture from the soil as well as the books, if he has not, for some part of life, at least, hardened his own hands with farm labor, he is not competent to write on agriculture, and cannot be a sympathizing, friendly, and safe adviser to the working farmer.

Three things, then, if we reason correctly, are essential to the usefulness of agricultural papers: 1. They should abound in the details of plain, practical agriculture; should herald every improvement in the growing and expending of crops, in the management of the garden and the orchard, and in the rearing and fattening of stock. Articles on these topics should be short, direct, plain, *home-thoughts in household words.* The more of them come from farmers the better.

2. They should aim at something beyond this: should not be contented with bringing up the backward farmers, by informing them what their betters are doing, but should strive to elevate the whole farming community, to meet the most intelligent, as well as the less inquiring, with something they did not before know, or had not well considered in its relations to their employment. They should, therefore contain scientific articles of a more labored character, not perhaps attempting a methodical arrangement of any one science, in all its parts, for some of them might have very little connection with agriculture, but drawing out, explaining and applying, such scientific facts as are adapted to throw important light on the various processes of agriculture.

3. These articles should be prepared by men who understand both the science and the practice of farming. The mere scholar, however excellent as a scholar, is not adequate to the task. As we would not trust the farmer, who knows nothing of chemistry, to write on the application of chemistry to agriculture, so we we would not trust the best scholar in the world, who knows little of agriculture, to write on the same subject for farmers. N.

VEGETABLE PHYSIOLOGY.

THE GROWTH OF PLANTS.—When plants grow, they must of course obtain the substance of which their increase consists from some source out of themselves; for nothing new is created; nothing exists, after their growth, which did not exist before. Consequently the substance of the grown plant must have been taken from the matter existing about it, and manufactured, so to speak, into the form in which it is found when the plant is mature. The matter which is thus transformed into the plant is called its food.

It has been stated that during germination, or while *sprouting*, as is more commonly said, the miniature plant takes its food from the parent seed. It has food inclosed in a skin, as in corn, wheat, or barley, or in a less or more hard shell, as the chestnut, or walnut, for this purpose. The plant, or rather the enlarged germ, for it can yet hardly be called a plant, has yet no organs by which to take its food otherwhere. But when it is fairly up, spreading its first leaves, and thrusting downward and outward its roots, it no longer depends upon the parent seed for its support; and though its sack of food may not be exhausted, it draws its food from the air through its leaves, and from the soil through its roots. Plants may be said to take in about one half of their food through their roots, and the other half from the air through their leaves. But this does not decide what proportion of their food really comes from the air, because a great deal of that which the air supplies, is taken in through the roots—is absorbed from the air into the soil, is then dissolved in the water of the soil, forming a pure, limpid solution, and in that state it flows into the plant, through the root; so that in reality a great deal more than half of the substance of a grown plant comes from the air. If you should burn a hundred grains of dry hay, where does it go when burnt? It is not destroyed. Man can destroy nothing. Fire can only change its form. It can spoil the hay as food for cattle; but cannot put it out of existence. It still exists somewhere, in some form. But where is it? About ninety-five grains of it have gone into the air, in the form of various gases, and only five grains remain as ash. Now when the grass of which that hay was made was growing, it took from the air the same parts which go into the air when it burns, and it took from

the soil the same parts which remain as ash. It should be remembered that all plants obtain from the soil only that which remains as ash, when they are burned; that they obtain all the rest of their substance from the air, either directly through their leaves, or indirectly *through* the soil, by their roots.

While the plant is growing, it pumps or sucks up from the soil that part of the substances which makes the ash when it is burned; and it draws in the portion which, on being burned, goes into the air, partly through the leaves and partly through the roots, this last part coming from the air through the soil; from about ninety to ninety-nine parts in a hundred in various plants coming from the air, and from one to ten parts in a hundred from the earth.

Not far from one half of the substance of plants—all that part which makes charcoal when burnt, with the exclusion of air, rather all except a little ash in the coal—enters the plant in the form of carbonic acid, a gas, or kind of air, about once and a half as heavy as common air, and, like common air, transparent and invisible. Carbonic acid, as before stated, consists of six parts of carbon (coal) to sixteen of oxygen. Now oxygen is the vital principle of the atmosphere, that which makes it support life and invigorate us when we breathe pure air. But when combined with carbon in the proportion of six parts by weight of carbon to sixteen of oxygen, it forms carbonic acid, which is poisonous to the system if inhaled into the lungs of animals, and sometimes even destroys life; but is life-giving, and productive of healthy growth to plants. When the lungs of animals inhale air, they retain a part of the oxygen to support the system, and give out as much carbonic acid. On the other hand, when the leaves of plants inhale carbonic acid—as they always do during the day-time so long as they are growing—they retain the carbon and send back into the air the oxygen. It follows, that the breath of animals is favorable to the growth of plants, because it supplies the air with the food which they require; and that the growth of plants is favorable to the health of animals, because they purify the air by retaining its carbon, and giving back the oxygen.

Thus the breath of every animal promotes the healthy growth of plants; and the breath of every plant (for plants breathe, in a certain sense—inhale and exhale air) is health-giving to animals. Were it possible that all animal life, over a whole continent, should be suddenly extinguished, all vegetable growth would from that moment be checked; and, on the other hand, if all vegetable life throughout a large continent were suddenly destroyed, men and brute animals would languish for the want of the purifying influence of growing plants on the air they breathe.

It should be kept in mind, as an inference from what we have said, that the more perfectly a soil is prepared, the more vigorously does

the plant put forth its leaves to draw in that part of its nutriment which it is the office of the air to furnish. In other words, the better you care for a crop at the roots, by giving it a deep, mellow, rich soil, with a clean, loose, absorbent surface, the better will it feed itself out of the air, that great reservoir of plant-food, which costs nothing. Within reasonable limits, to be determined by the price of labor, the value of produce, and the ease or difficulty of obtaining manures, unquestionably high cultivation is more profitable than low.

N.

UNITED STATES AGRICULTURAL SOCIETY.

FOURTH ANNUAL EXHIBITION.

This great show came off at Philadelphia, as previously announced. The arrangements were well carried out, the number of entries was very large, and the attendance upon the show-ground was all that could be anticipated. Nearly two hundred thousand persons passed through the gates.

So far as the ability and efficiency of the officers could secure it, a perfect success was attained. Even the high reputation of Mr. Wilder, at least, lost nothing.

The gentlemen concerned with him, the Philadelphia city government, and others, were certainly entitled to great credit, for the manner in which they discharged their several trusts.

Daily and weekly papers have already made public to the whole country, the general features of the show, and it is needless to repeat them. We indeed have room, in this number, for a mere glance at the different departments.

Cattle.—The entries of cattle were very numerous, and from all parts of the country. The quality of the animals was of course various. Some of them would not attract special notice anywhere. But some of the best animals in the country were in those stalls. Bulls, oxen, cows, the Devons, the Durhams, the Jerseys, the Alderneys, the Ayrshires, and natives, each in their own department, made a great show. Probably no better exhibition of the kind has ever been made.

Sheep.—We failed to be impressed with the show of sheep. It might have been our fault. We viewed this department very hastily. Still there were some very beautiful fleeces.

Hogs.—The show was good, presenting the best breeds, in good condition, but it was not so extensive as the show of the last year.

Horses.—The splendid show of horses at the exhibition in Boston, led us to anticipate a similar treat on this occasion. But we were disappointed. Some of them, of course, were superb animals, but the

number of the best class of horses was exceedingly limited. Family horses, by far the most generally useful, were, however, well represented. A very few splendid draft horses were on exhibition, either singly or in teams. But, with very few exceptions, trotting horses were not there. We believe there was not a single trial for speed, as trotters, in which all the horses were not on the run, through more or less of the course. Some "broke" several times on a single round. This was, no doubt, the fault partly of the rider, for he ought to know his horse well enough to guard against such occurrences. We would declare such trotting as of no account, and order a new start. We doubt whether a really fair trial can be had, among us, in any other way.

The trotting horses entered for the first premiums made good time, to wit, two minutes and thirty-four and a half seconds. Others were but very little behind. The other trials of this kind were very unsatisfactory, and ought not to have been rewarded by the grant of a premium. We do not believe in the propriety of inviting mere family horses to compete as trotters. As well admit any other swift-footed animal into this race. There should be conditions annexed to all these offers, insuring the public and the parties directly interested that comparative merit, in the absence of real merit, should not entitle to a premium.

The Vermont breeds of Morgan and Black Hawk horses, greatly excelled. We saw no others that would compare with them. Some of these were of almost matchless beauty. Yet we believe the horse that won the first prize for trotting was not a Vermonter.

Agricultural Implements.—There were several acres of ground well covered by new and useful implements, of every kind and variety, from the farm steam engine and the hugest reapers, to a fancy amateur lady's hoe. This is a new feature in the exhibitions of this Society, and one worthy of especial notice. But all our fairs are deficient in the means of a thorough trial of the merits of many competing inventions. We approve and fully endorse the recommendation of the committee having charge of awarding premiums in this department, that a separate appointment should be made for the actual trial of all such inventions, for testing their qualities in actual farm-work, under the supervision of practical, as well as scientific judges. Many implements are good under certain conditions of soil, &c., which are good for nothing under other conditions. Such may be worthy of a premium, but care should be taken that farmers are not led astray by a general commendation of what is useful only in certain unusual circumstances. These days of trial may be public, they ought to be open to all, and they may often be turned to very good account by the observation of outsiders. This was fully illus-

trated on the trial of the reapers at the London Fair. The reaper which obtained the prize, by no means obtained a unanimous verdict from those who witnessed the trial; nor did he obtain any exclusive possession of the market. Others sold, perhaps, as extensively as he did.

Among the machines exhibited, were many which we would like to notice in our pages, and we may do so hereafter.

The show of the tables in the HORTICULTURAL department, did not offer much encouragement to repeat the experiment, now tried, we believe, for the first time, of collecting the best samples of agricultural products from the whole country. This part of the show, perhaps the only one, indicated a lack of effort on the part of the managers. The cotton, the rice, the sugar, the tobacco, the corn, the wheat, and even the numerous fruits, &c., had no representation here. Such a show, if made, ought to be so extensive as to present to a stranger sensible evidence of the extent and variety of these products, or the show should not be attempted. A monstrous squash, or huge cucumber, or large bean-pod, are unworthy such an exhibition.

The same remarks apply to some extent to POULTRY. If fancy men wish to exhibit their own curious or beautiful birds, to the people assembled on such occasions, as a speculation, a place may be assigned them. But we doubt whether such a department adds to the dignity or utility of this Society.

In reviewing what we have written, thus far, and noticing what may be taken as unfavorable criticisms, we are almost tempted to burn our "copy." But we offer these suggestions by no means in a spirit of disapprobation or reproof, for, talk as we may about this or that department, as a whole, it was a GREAT SHOW. No country, perhaps, has yet exceeded it, still less any other Society in this country. Such was the opinion of those who have been abroad extensively and have had ample means of judging on this point. But we *can* do better, and therefore we *ought* to do better, *in some departments.* We cannot have wiser, abler, or more efficient officers; we cannot command any higher talent for planning or for executing, than we have in the present President and his associates. Superior men do not exist. These gentlemen have a much harder task than the world gives them credit for. It is a very laborious and perplexing trust which is committed to them. We know of no persons who could, in all respects, do so well, and we are not at all surprised that the Society were unwilling to excuse them from further service. They have, no doubt, *encountered* many advisers, advocates for all sorts of policies and plans, and they are worthy of all praise for doing up the business before them, so much like business men.

THE BANQUET, &c.—The dinner under "the big tent," was all that

any reasonable man could ask. Those who went there to be conspicuous, or whose abilities lay chiefly in the stomach, might have preferred a more fashionable saloon, and special attendants behind their own chair. Some of the "reporters" for the daily press, have indulged in criticisms quite unworthy of the occasion. But probably they have done but little harm. The dinner was attended by about two thousand persons, and was well furnished with the substantials, which were followed by a dessert more extensive and more tempting than we have usually found on similar occasions.

The INTELLECTUAL BANQUET was made up of appropriate speeches from gentlemen eminent for their ability, and was in every way worthy of the occasion. Addresses were made by Governor Pollock, of Pennsylvania; Governor Price, of New-Jersey; Mr. Meredith, of Pennsylvania; Mr. Quincy, Jr., of Boston, and others. P.

BOTH SIDES, AND A CORRECTION, IF NEED BE.

A HIGHLY-VALUED correspondent, alluding to an article in our October number, says:

DO I UNDERSTAND RIGHTLY?

DEAR N.:—It is not without fear of receiving a merited rebuke for presumption that one, young and inexperienced like myself, ventures a few remarks on the teachings of a professor. Lest you should think that I am addicted to fault-finding, I will say that your articles met my cordial approbation, excepting (if I understand your meaning rightly) a part of the article in your October number, entitled "Farming; its relations to soils, etc." If I understand you rightly, you deprecate variety on the farm, would have a farmer confine himself to a single branch of the great art of agriculture, and think a man that knows and practices the whole art a "Jack at all trades and good for none," and that it "belittles" a man to know and practice the whole art, and that a farmer should forego his independence, and depend on the caprices of speculators and middlemen for his supplies of country produce. But I may misunderstand you; I hope I do, for it is disagreeable for friends to think differently. To conclude, I send you "Norfolk's views," as published in the *N. E. Farmer*.

"It has been said that a farmer should never buy what he can possibly produce on his farm, and this is sound doctrine. The most forehanded and prosperous farmers I know of, are those who act upon the above principle; they have 'every thing' to sell, and buy but little. They are the men who plant their own trees, raise their own seeds, as well as pigs, etc. YEOMAN."

In part our good friend misunderstands us, and in part we differ;

nor do we regard a slight difference of opinion as a very great evil, after all, since a generous forbearance is one of the most beautiful elements in that moral discipline which all of us are undergoing. Indeed if we would be perfect men—perfect, we mean, in no controversial sense—what all will acknowledge we ought to be—we must learn to love men of other religious views than our own, of other political stripes, and of other pursuits, including among the rest farmers who think with us, farmers who do not think with us, and farmers who do not think at all, if there are such, as we fear there are a few.

Our object, in the article referred to, was to castigate that thoughtless course which, we are sure, prevails with too many, of raising a little of every thing which Grandpa grew, and about as much as Grandpa did, without considering whether the times have changed, whether the condition of the soil is altered, or whether it may not be more suitable for another kind of husbandry. We do not object to the farmer's having "every thing to sell," if his farm will produce every thing advantageously, nor to his having but little to buy. But he will have some things to buy. The soil will not grow a dress ready-made for his wife, nor fashionable bonnets for his daughters; and although the bonnets of the present day are modest little things, not hiding a great deal of beauty, as of yore, yet they cost no less than when they projected as far as the cornices of the national Capitol; and the farmer who is so fortunate as to have a wife and daughters, must buy them; and so a great many other things which the soil refuses to grow. It is of no use to say that dress is *nothing*. The world says it is *something*. The world is right, too. But if it were not, it is contrary. It will have its way. The farmer must bow measurably to its dicta, or he inflicts a sort of disability—at least a social inequality—upon his family, such as every kind-hearted man would eschew. In order to meet the *reasonable* demands of a family, and to fulfill his obligations to society, he has much to buy, and consequently he must have something to pay with. It was the having *nothing* to sell that we deprecated; and we think that this, in too many cases, results from bad management, in not aiming strenuously, we will not say exclusively, at a surplus, above the wants of the household, of some one or a few staples, such as the farm is best adapted to produce.

Our idea is, that every farm, the poorest even, the worst situated, may be made to produce a surplus of something, and at some profit, though not always large. We do not advise the farmer to stake all upon a single crop. If he have not a large capital, it would be too hazardous, for that crop might fail; the season might prove unfavorable to it; and he could illy bear the loss. Nearly every farm is capable of producing the ordinary vegetables, most of the cereals, the

fruits, the animal productions, as meats, butter, cheese, etc., required by a family, and then of producing a surplus of some one or two things; and as the farmer can buy such necessaries as will not grow out of his soil only by selling a surplus of what will grow from it, it becomes the great question with him, what can be grown in surplus to the best advantage, *on that soil, in that location*, BY HIM, with all his tastes and his distastes, his abilities and his inabilities, his family consisting largely, it may be, of women, able and willing to manage a dairy, or the reverse; more circumstances than we can name to be taken into account. To grow the necessaries for a family, so far as the soil produces them, is not very difficult; a farmer may do that who is not an adept in any one branch of farming; but to grow the surplus which is to procure the other necessaries, is another thing; it is more difficult; and here is the inducement which the farmer has to make himself more skillful in some one branch of husbandry than he could possibly be in all.

One farm, for instance, being far from market, land cheap, unsuitable for tillage, but good for grazing, may be better for wool-growing than for any other purpose. Now, why should not the owner plunge into that business? And why should he not make himself far better acquainted with that business, as regards the different breeds of sheep, the qualities of their wool, the characteristics of their meat, their adaptedness to his latitude, their degrees of liability to disease, the care they require, the remedies suited to their diseases, and a thousand other points, than the generality of farmers can be expected to be? It seems to us that he should study the subject, practically and theoretically, till he becomes so much an adept (*au fait*) in the business, that we, who have a less interest in it, would be willing to be put down only as "Jacks at the trade"—"good for nothing," *comparatively*, at that particular branch of agriculture. And that is all we meant when we used the expression. All farmers may know *pretty well* how to grow each product of the farm; but we want each of them should know *very well* how to produce some surplus, adequate to the procuring of such articles of necessity, taste, and luxury, as the farm will not grow, and to the making of himself independent.

Another farm, viewed in relation to the soil, climate, location, tastes and circumstances of the occupant, may better produce beef as a surplus; another, fine stock; another, wheat; another, the cereals generally; another, Indian corn; another, fruits and vegetables for a neighboring market; and so on, in great variety; and we hold it to be very evident, that the owner of each farm should settle the question, what he is to produce *as his main dependence*, and then, whether it be cotton or wool, beef or pork, dairy products or fruits and vegetables, wheat, corn, onions, or cranberries, let him acquire a

knowledge and skill in that particular branch which none less interested will ever acquire. A grand secret of doing things advantageously is, that they be done by persons who the most perfectly know how to do them. With these explanations, we reäffirm the doctrine expressed in our last—that while the farmer grows a considerable variety of such products as are wanted in his own family, so as not to be obliged to buy what may as well be grown at home, and so as to be able to dispense, as far as may be, with the services of the "middlemen," he would do well to aim at a large surplus in some one or two items, which he, by a wise adaptation and preparation, can produce with more than ordinary facility.

"Norfolk's" instruction is not far from right. If it had been, it would not have found a place in the *New England Farmer*. A journal so truthful, so prudent, and so candid, will, however, allow us to suggest an amendment. Instead of saying, "A farmer should never buy what he can possibly produce," we would say, a farmer should produce what he can produce to the best advantage, considering the nature of his soil, its location, etc., and considering, also, all the advantages that can be ascribed to living within himself, and escaping the being made merchandise of by the middlemen. On this principle, the farmer may sometimes buy what he could *possibly* raise. For instance, Massachusetts farmers must have wheat—about five bushels, we suppose, to each person in the family; they could possibly produce it, but it would be hard to convince them that it is not better to buy it, even after passing the hands of half a dozen speculators, and reaching a price of more than double of what the Western farmer gets for it. Their soil does not utterly refuse wheat; but it refuses it except at a cost which they think too great; and perhaps they are right. If they can grow beef, pork, butter, cheese, corn, vegetables, and fruits, at double the profit, they certainly are.

Too much importance can hardly be attached to the growing, in each location, of the crops best adapted to it. Almost equally important is it, that the man who grows them should be specially versed in that particular branch of agriculture. And as it is in practice, so is it in precept: the men who have excelled in any product, are the very ones to instruct others in that branch of agriculture or of mechanics, as the case may be. Will our agricultural readers take notice of this? We want articles from them on some branch of agriculture, or in some department of mechanics, in which they excel. We ask this on the common-sense principle, that those who have traveled a way successfully know best how to direct others in it; or that he who has done a thing well, can, better than all others, tell another how to do it. We value short communications from men who know practically, and from long experience, whereof they write, more than

long and polished essays from men who know more of Greek literature, Latin accidence, or Addisonian style, than of agriculture or mechanics. Some of our readers are among the best cotton growers in the country. Will they give us occasionally an article on that subject? Others excel in wheat growing, in the growing of Indian corn, in rearing superior stock, in dairy operations, in horticulture, in the nursery business, in the construction of labor-saving implements, in rural architecture, in the arrangement of farm buildings, or in some other important branch of industrial art. Will they give us their views in those departments in which they excel respectively? We want them from every part of the country, that our work may be truly national, and on all subjects connected with human industry, that it may be something more than national—the friend and helper of industrial art everywhere, and in all its forms, and an open medium of communication with each other for all "the workers" in the world of useful industry.

Thanks to our correspondent for his criticism. We are always willing to define our position: and nothing suits us better than to retreat, if we get upon the wrong track. N.

NO SENILITY.

A WRITER in the *Country Gentleman*, over the signature of Senex, complains of the undue attention given to horses, especially to fast horses, at our Agricultural Fairs. There is more truth than fiction in the "old man's" contrast of the past with the present. *Good* horses go as far to promote a nation's wealth and prosperity, as any one material object, but *fast* horses have precious little to do with agriculture. They tend more to make fast men than sure farmers.

"Ten years ago and more, I was in the practice of attending county fairs, in one of the States, where, after an interval of one decade of years, it was again my lot to be present. In those early days there was little to encourage the hard-working, enterprising, and self-denying officers—the number of spectators in attendance was at most but a few hundred, and all that was to be seen was open to the wide world; a fee even so small as a few cents for seeing the sight would not have been tolerated. Now, although the grounds were inclosed by a high fence, and a snug fee was exacted of every visitor, yet there were at least fifteen thousand persons present, and I learned that in that part of the State twenty thousand was by no means an unusual number. The funds of these Societies were thus largely maintained, and there was little of that hard-working, up-hill business once required. This would have been indeed very gratifying, had I not observed a striking difference in another direction. Formerly, every thing connected with the operations of the Society with which I was most familiar, (and the others in that part of the State were much like it,) tended to the development of the most valuable information; and all the spec-

tators, to a man, (or *woman*, as the case might be,) were busily occupied in examining the fine animals, and learning where the breed could be procured; how to raise such large and fat oxen; how those fine squashes and excellent water-melons were cultivated; what was the secret in making that excellent firkin of butter, and those large and magnificent cheeses; which was the best made plough in the county, and whose threshing-machine run with the least friction. The reports contained much of the highest value on raising the different crops—the results of experiments on manures, underdraining, and other departments of profitable farming.

"But at this present fair, I observed that a great change had come over the spirit of the dream. Of the fifteen thousand persons present, there were about forty-five engaged in examining the new farming implements, of which there were some quite meritorious, and perhaps twice that number, including mostly ladies, were in the 'hall' (shanty) devoted to stoves, fruits and vegetables, cheese and butter, and the various household articles. The cattle had a few occasional visitors, who passed quickly along the line of posts to which they were tied, made a few random remarks, the general run of which was, 'I left a great deal better oxen than *these to* home;' 'Them 'ere cows aint a touch to mine,' etc., and passed on. The race-course was the great object of attraction throughout the day. Early in the day, this ring (nearly encircling the entire grounds) was taken by some twenty or thirty drivers of various grades, in buggies, sulkies, carriages, wagons, etc., most or all of which endeavored to show the speed of their horses. Some trotted their teams at the moderate pace of only ten or twelve miles an hour; others more ambitious, in light buggies, and with unlit segars, or sticks to imitate them, were not satisfied with any thing less than fifteen or twenty miles, while occasionally those were all passed like drift-wood by the flying sulkies drawn by the 'two forties,' the drivers of which appeared to regard with great contempt their slower competitors. As one set of charioteers wore out their steeds, others took their places, so that the ring was kept well thronged for several successive hours. Nineteen twentieths, at least, of all the spectators at the fair, were intently watching these performances the day through."

EXHIBITION OF THE AMERICAN INSTITUTE.

The Cattle Show.—This show was held on Hamilton Square. It was not so extensive as in some previous years, but in some of the departments, it was not inferior to them or to others held elsewhere. In the department of cattle, it was well worth attention. The Durham cattle were, many of them, very superior animals. Several of the bulls would rank among the best in any show. Among the Devons were also some excellent specimens. The Ayrshires were less numerous, and perhaps not of so good quality, and of the native breeds, only one or two cows were worthy of especial mention.

The Poultry Show was not specially attractive, either for its extent or the quality of the fowls. The poultry fever seems to have almost disappeared.

Pigs.—The Suffolks, the Essex, the Berkshire, and some other kinds were exhibited, of very good quality; though limited in numbers, the collection was very creditable.

Sheep.—The Southdowns were present in very large numbers. The Leicesters, the Spanish Merinos, and some long-wooled sheep, and one or two other varieties, made a very good display. Mr. Campbell, of Vermont, exhibited a fine lot of Spanish Merino rams. The Chinese rams were objects of peculiar interest to us, at least, from their novelty, being the first we have seen. They were on sale.

The Horses made a very indifferent show. A few were fine animals, and if you believe the declarations of their owners, some of them are very remarkable. But we were skeptical, and preferred trusting our own eyesight. We are not anxious to volunteer an advertisement of the animals here exhibited, and hence omit individual references. Many of them were on sale, and some were offered at auction, but with what success we have not inquired.

This show was not crowded with guests. What we wrote a year ago, in reference to the management of fairs, is even now verified by what we have witnessed the present season. A show held for three or four days, demands something not yet devised, to attract those who wish to learn from those more successful than themselves, in some particular department, at least, while the charms of the race-course, which are by no means imaginary, are of at least doubtful tendency, and attract only a part of any community. But more of this elsewhere. Such remarks are not specially required by the American Institute, and we are not disposed even to make them serve for a text.

The exhibition of this association in the Crystal Palace, was capital. Perhaps it was the best we have ever seen. In the number and character of the new machines and of recent inventions there exhibited, it was well worthy the careful notice of every mechanic, and could not fail to interest all who have a taste for witnessing ingenious combinations and applications of inventions long known, to uses hitherto not thought of, but yet simple and effective.

A description of several of these inventions will be found in another part of this number, to which we refer our readers.

Capt. Ralston's Lectures.—For three successive evenings, Capt. Ralston entertained such portion of the visitors in the Crystal Palace as knew of the appointment and as were inclined to listen, with lectures upon different branches of veterinary science, illustrating the subjects treated upon with his beautiful paintings, by the aid of his powerful magic-lantern. This was a capital idea. The only mistake was, in having other attractions so strong, as Dodworth's splendid band, to attract attention, and not giving sufficient publicity to the announcement.

Many persons were within a hundred feet of the learned lecturer who would have been highly gratified in listening, but who were ignorant even of his presence. But it was a good beginning, and in another season, better arrangements may be made for such entertainments. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OSAGE ORANGE.

PRAIRIE countries, especially where the prairies are large, are destitute of fencing material, and the law of this State is not as it was in the days of the patriarch Jacob, or at the birth of our Savior, when shepherds were required to keep the flocks of cattle and sheep from getting into mischief, or from straying off and getting lost—they are permitted to roam at large, and get their living where they can, no matter how, or from whom.

We, therefore, us settlers of a prairie country, have to fence our farms to protect our crops. One of the great studies of the prairie farmer is, to contrive how to fence his farm when his small piece of timber is exhausted. Osage Orange has been introduced here for the purpose of hedging. A large portion of the settlers, especially those from a heavy timbered country, doubt its being of much value, as the winters are often very severe, and it being a Southern plant, they fear it will kill out. But experience being a good school, I resolved to try it. One year ago last spring, I got me five pounds of the seed, and before planting them, I put them into water milk-warm, and let them soak four days, changing the water daily; then I took them and spread them on a board, and put them in the sun, keeping a wet cloth (woolen) over them, until they were thoroughly sprouted; I then planted them, covering one inch deep. In a few days they were all up. I had been told that I must take them up and bury them during the winter, or they would all kill out; but as I was busy at the time, cold weather made his appearance, and coming sooner than I was looking for him, I did not take them up. Last winter being the coldest winter on record in this part, I expected my hedge was ruined, my fence all lost. As the old saying is, "Nothing venture, nothing have," I thought I would let it go, and try again. But when gentle Spring made her appearance, and the great fountain of light had made his journey northward far enough to drive the tingling frost, whose business it had been for several months to be searching the cracks of houses, and putting men in mind that their houses were to be inspected unless covered up—when the herbs and fields began to look green, I thought I would examine my fence, and instead of finding it all dead, I found it nearly all living. The tops were dead, but

the roots being green, they all sprouted up. Now if the first year's growth will stand such a winter as last was, I think there will be no danger of their being killed out and spoiled for a fence.

If they will stand the Northern winters, nothing can equal them for fencing in this prairie country; they will make a lasting living fence, secure from attacks of all kinds. But in making this fence, the proverb of "Poor Richard" will have to be borne in mind, and that is, "What is worth doing at all, is worth doing well." I have seen hedges in this State of two years' growth that would turn most kinds of stock. Where a hedge is planted the ground must be tilled as for all other crops. It needs plowing and working, in order to make the hedge strong. It must be cut the first summer after being set in the hedge-row, in June, and then again the last of August. If set late, twice cutting it off will answer. The object of cutting it is to make it spread and have it grow thick. After it gets once thickened up at the bottom, it will stop all kinds of animals, as small as the hen and her family of young chicks.

It is my opinion that the Osage hedge will become the adopted fence, in the course of a few years, throughout all of Uncle Sam's dominions, with the exception of the extreme North. Although timber is sufficiently scarce at present for the farmers of this prairie country, it will not remain so for many years, and something must take the place of rails or boards, and I have not heard of any thing that I think will make as good a substitute as the Osage Orange. Mr. Editor, I have been a subscriber to your journal since it originated, with the exception of the first volume, and if I mistake not, it is one of the best journals of the kind that I have read in the United States, though you have said but little about fencing with anything but rails or boards. Your Plough cuts a wide furrow, your Anvil takes many a hard knock from the sledge, and your Loom weaves and spreads a long web; and if this communication will help the ploughman to secure his crop after he gets his ground ploughed and sowed, I shall be much pleased. Perhaps your readers and correspondents can give me some information how to proceed in raising a living fence, which certainly must be done within a few years. This country is going to be thickly settled, and men must keep their stock in pastures, although there are at present great chances to raise cattle upon the broad prairies.

L. S. Spencer.

Lynn, Warren County, Iowa.

Thanks for the above *experience* with the Osage Orange. If practical agriculturists will often give us short, matter-of-fact articles, confining themselves to what they *absolutely know*, as we believe Mr. Spencer has, our Plough will cut a deeper furrow, and will be less likely to run

crooked and *balk*. If mechanics will do the same, our Anvil may receive more workman-like knocks, and our Loom give a more perfect web; or, in other words, our cherished desire to advance the great national industries, will be more surely realized. As many working men as will give us something which they *know*, but which they have reason to believe is not generally known, shall have our thanks.

The question of fencing is one of vast importance. We remember to have seen the great fire in this city, in 1835. It was a sorry sight, burning over nearly fifty acres of the city, and destroying property to the extent of perhaps forty millions. But the loss was a mere nothing compared with the cost of farm-fences in the United States. The time will come when fences *for the protection of crops* must be dispensed with. Already the cost of fences in many districts is eating up nearly all the profits of farming. But as fencing is yet the order of the day, it is a question of annually increasing importance how it can be done to the greatest advantage.

Our impression is that the Osage Orange will become hardier by acclimation, and will prove exceedingly valuable for all but the most Northern States, and perhaps for them. But we have not positive knowledge on this subject. It may become liable to new diseases or new enemies, as it travels out of its native region. We cannot now give our friend, Mr. Spencer, specific directions how to proceed; but he should understand that trimming, *trimming*, TRIMMING, is the first, second, and third rule; and we believe it is the fourth, fifth, and last. Do not be in too great a hurry. When men tell us of having a sufficient hedge the third year, we fear it will prove easy to small animals afterwards. A downward, lateral growth must be forced for two or three years, and while this is going on, an upward growth must not be tolerated. Severe trimming—the cutting down all aspiring shoots—is the rule by which the hedge becomes imperviously thick at the bottom.

N.

DIOSCOREA BATATAS.—At the show at Philadelphia, we had an opportunity of testing the Dioscorea Batatas, which has been the occasion of much contention and not very courteous criticism on the part of many writers in our periodicals. We do not hesitate in saying that every gentleman who made the trial, pronounced it a good potato, of a fine, smooth grain, and pleasant taste. Among these were some who had not been very careful of their words in their ridicule of the whole thing. We could not avoid the conviction and were tempted to utter it, that it was always best to know something about a subject before giving a *very* decided opinion in relation to it.

P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

WARREN CO., IOWA, AGRICULTURAL AND MECHANICAL FAIR.

MESSRS. EDITORS:—Our age is an age of improvement, of inventions, and of literature. Men are coming forth from the dark ages and from the corruptions which have for centuries back led men who wanted to be distinguished, to array themselves for the battle-field, and to put their whole energy and their ingenuity to the invention of fire-arms and other destructive implements for the destruction of their fellow-men. He that could lead the largest army and destroy the most lives was greatest in the eyes of the world; his name was both in song and prose. He that could face the cannon with the most courage was a benefactor to his race. For ages past the *farmer* has been considered nobody in the councils of Church or State; but this class of men are getting their eyes open; they are coming into that "light which will grow brighter and brighter until the perfect day," when their counsels will be adhered to in our halls of legislation. The tiller of the soil begins to think that he is a *man;* so with the *mechanic:* they are the producers, the root and foundation of all business.

We Western barbarians, so called by many, as we are getting to be somewhat enlightened, and to feel our consequence, are forming societies for mutual improvement and for improving our business. A Society called the "Warren County Agricultural and Mechanical Society," was formed in this place a little more than a year ago. This Society held their first exhibition on the third day of Oct., 1855 The county is new, and not much was expected.

But all took an interest in the matter, and were determined not to have a "smash down." Cattle of all grades, from the "scrub" heifer of the prairie to the three fourths Durham, and the best cow, the best pigs, turkeys, chickens, geese, lambs, calves, colts, watermelons, pumpkins, potatoes, etc., etc., all, when put together, made quite a respectable exhibition for a new county. On the 3d of October, 1856, they met in "fair assemblies" to show their stock and their improvement upon the cattle and other domestic animals.

The Society have purchased twenty acres of ground, for the purpose of using it for this exhibition, one mile west of Indianola, the county seat of Warren county. It is upon an elevated piece of land, with a small descent each way from the center east and west. A splendid location it will be when fenced and improved as it should be. When the day appointed came for the second "fair," I thought I would go and see what I could of the improvements they had made in the short term of one year. When I arrived I saw a high board fence around perhaps two acres, and as I was not a member, my ad-

mittance fee was twenty-five cents; but rather than pay the twenty-five cents I paid one dollar and became a member, so that I could go out and in at pleasure, and have a voice in the proceedings of the Society. I went in and walked around, and I was astonished to see the difference in the cattle. Here I saw as good calves at the age of six months as I ever saw in Lake Co., Ohio, and they think there that they cannot be beat for good cattle. Men had got their ambition up, and had taken some pains to raise their calves and see what they could make of them. Some had sent or gone to Illinois or Ohio and purchased bulls of the best quality; and I hope that they will keep up the excitement. In horses but little improvement is made as yet. All other things, especially in the mechanic art, have done well. The products of the earth were not as good as last year, owing to the lateness of the spring and the heavy drougth during the summer. The season has been a poor one for the farmer. As regards the female "fixins," I have never seen better, with the exceptions of the State Fair of Ohio, and the World's Fair at New-York.

They were got up in the best of style—best blankets, and quilts of the nicest kind; yet there is a chance for all to improve. But although we are called barbarians, we are becoming partly enlightened, and I am in hopes in a few years that we shall be able to compete with our sister States in agriculture and the mechanical arts. It takes a child several years to become a man after he begins to walk. So with a new country. But there is one thing we have got, and that is the soil, and we hope to be able to act the man in all capacities.

LYNN, Warren Co., Iowa. L. S. SPENCER.

That is the right sort of spirit. The sooner you go ahead of the East the better will it be for all parts of the country. N.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

GUMBO.

Messrs. Editors of The Plough, Loom, and Anvil:

DEAR SIRS:—E. M. from Tulip Hill, Iowa, Mrs. Ellis, and her "revision" by An American Lady, as well as "Old Noah's" Dictionary, are wrong as to what we "outside barbarians," away down South on the Mississippi river, call "Gumbo," or we do not know of what we speak. It is said by old uns, "seeing is believing, but feeling is the naked truth;" now if one who has felt the oblivious state following a meal from our Gumbo knows the truth, then we must be O. K.

As to cooking the Gumbo, Gumbaud, or Okra, much as to that, is a matter of taste; as to ourself, we would just as lief have it when cooked in the same pot with bacon and cabbage, it being tied up in a

bag, then seasoned with rich sweet cream, butter, salt, and pepper; though our women folks since the railroad and the telegraph has got out in the backwoods, cook it by itself, then use "drawn" butter, salt, and pepper.

But "Gumbo Soup," is the thing that comes as nigh making *a gentleman* forget his mamma, as "rum punch," does on the *herd* swinish. I cannot give the quantities, but having had to order it done, I could perhaps *show* the quantities, and will now only give the general directions. Take a fowl, when about grown is perhaps best; cook till done, by frying, just as for your breakfast; with the masher kept by cooks, mash all up by beating until bones and meat are broken up. Have your pot; water; okra and ripe tomatoes cut fine; butter, salt and pepper, and not too much onion; use these last only to flavor, then boil all together for several hours, even from 8 or 9 o'clock till 1 or 2. When well made, the chicken is boiled all to pieces and so mingled with the soup as to be barely discernible as a fibre. Some put in thin strips of nice middling of bacon, only to make it richer. Tell all the above, except "old Noah," to try the "outside barbarian" style, and then tell us of what is, GUMBO.

MANAGEMENT OF FAIRS.

IN our seventh volume we published several essays in relation to the true policy and proper management of fairs. We have not since had occasion to change our opinion in reference to the questions there discussed, nor do we believe that many years will pass before a portion at least of those suggestions will be adopted by all our agricultural societies. There are other points that are by no means of secondary importance, in respect to which a change seems almost indispensable.

Suppose an exhibition is to be held for three or four days. It consists of cattle, swine, horses, sheep, etc. The entries are very numerous. The animals are choice. But how much time is it desirable to consume in viewing this collection? How long could even an enthusiast content himself in gazing upon them? Perhaps half a day would be ample time for such an examination, and would even allow the taking of memoranda sufficient for an extended report in some newspaper. But give a whole day to this. You have then used up just one fourth of the time. What shall each or all do the other three fourths? Who will answer for us this question?

Practice, recent practice says, gaze upon a horse-race. Very well; how long can we occupy ourselves profitably in this manner? Scarcely three days, we think. But there are three days unprovided or, and how can they be advantageously employed?

Go home before the show is concluded, some one may reply. But though good advice under supposable circumstances, it is not consistent, perhaps, with the plan or wishes of the managers, who would prefer to retain the whole company, if possible, to the close of the fair.

Shall we give our own views on this point? We will do so, but beg leave, first, to ask, What is the one great object of the show? The answer is not doubtful. It is to improve the condition of agriculture, in all its departments—to deepen and to extend an interest in and a knowledge of this great branch of industry. This design, though single in its ultimate aim, consists of several parts, and in its accomplishment, the manager of a fair must know, and properly appreciate the importance of, these details.

One important part of the education to be given at such exhibitions is to show to the community what can be done. Some make too low an estimate of this feature of a show, and some too high This lesson concerns not cattle alone, but ought to embrace all departments of agricultural labor. It is quite as important to know when and how lands can be improved, or better varieties of seed secured, as to know the best breeds of cattle. Nor can this more extensive view of the subject be well overlooked. It is of the very first importance. Some suppose that by scientific treatment, every acre of land can be made to bear the largest amount of crops—its hundred bushels of corn, its sixty bushels of wheat, and so on. Others believe that their land already produces crops that pay better than larger ones. Both are equally mistaken, and on a fundamental point. What are our societies doing to enlighten the public on these matters?

Another branch of this education is, to teach the appropriate modes of treating different soils, so as to bring them to the best condition. This may be treated theoretically, and by actual experiments. But how far do our State and national societies attempt to do either of these? The only effort in this way, as we understand it, consists in a statement, by a limited number claiming premiums, of their mode of cultivation.

Another department of education has relation to breeds of cattle, the treatment best for each, the possibilities of each, and their peculiar distinguishing points of merit, whether, if cows, as milkers, or for butter and for cheese; if oxen, their powers of endurance, the feed they require, and the quality of their beef, etc. But we need not complete the list which we have but just begun. It might be extended indefinitely.

Now we beg leave to ask, in how many of these feasible ways, are any efforts made in securing the one great end? It seems to us that almost the whole labor required in preparing for these shows is

wasted. We have hundreds and thousands of well-informed farmers, and practised in writing on these subjects. Why not bring them out on such occasions, not in idle theorizing or oratorical displays, but in the detail of experiments; in describing actual processes, not for securing a single large crop, but processes by which lands have been permanently improved and ordinary crops made remunerative?

The successful treatment of clayey soils, of cold soils, of gravelly soils, etc.; the daily treatment of cattle, of swine, or of fowls; the manner of planting and the products secured under the processes adopted—these and many other topics, assigned at the previous annual show, or early in the year, and made the constant topic of study and of care through the year, the details and their results being carefully written, may be read to all desirous of knowing. By opening these subjects to a general discussion, the practices and the results of all present may then be obtained, and so far as they differ from the written essay, these differences may be discussed on the spot and by the press; for these verbal statements being taken down, by a skillful reporter, may be made part of the record, and the whole, in the form of an abstract, be given to every member of the Society, and to the public, at the actual cost of printing them. How rapidly four days would pass away if thus devoted. How short the time compared with the end aimed at. Here is at least work enough for the visitors of an annual show. P.

DIRECTIONS FOR THE FLOWERING OF DUTCH BULBS IN POTS OR GLASSES.

Hyacinths may be planted in pots from the latter end of October till December. The soil used should consist of about one third of white or river sand, and the remaining two thirds equal proportions of vegetable mold and loam. The pots should measure about six inches across the top. When the bulbs are planted, the pots are to be lightly filled with earth; then the bulb may be placed in the center, and pressed into the earth, so that it may be about half covered. After this, the earth should be made solid all around the sides of the pot, to fasten the root. When the bulbs are thus potted, they should be removed into a cool place, in order that they may become well rooted before the tops shoot up. Much light is not necessary at this period; indeed, this deprivation of light causes them to root more quickly than they would otherwise do. For the first fortnight or three weeks after potting, they may be placed upon a shelf in a shed or a cellar, or in any other convenient place, providing it be cool. Little water is also requisite; once watering, immediately after the roots are planted, being sufficient, if the situation is tolerably damp where the pots are placed.

If the stock of bulbous roots, such as hyacinths, narcissus, early tulips, &c., be large enough to occupy a small frame, the pots may be put within it after planting, and they may be covered a few inches

deep with rotten tan, or any other light material. The pots will soon become well filled with roots, and the shoots produced by bulbs previously well rooted, will be stronger, and the flowers larger, than if they had been put in a warm and light situation. When they are rooted, a few may be introduced occasionally into the room window, or on the mantel-piece, if there be sufficient light. Light is quite essential when the tops begin to grow. By this means a succession of flowers may be had during a greater part of the spring.

If it is wished to bloom hyacinths in water-glasses, the glasses should be filled up with water, but not so high as to come in contact with the bulb. Too much moisture before the roots protrude, might cause the bulb to decay. The glasses may be put in a light, but cool situation, until the roots are grown half the length of the glass, at least. The longer the roots are before being forced into flower, the finer the flowers will be; and when rooted they may be kept warm or cool, as flowers are required in succession. The flowers will not put forth, even when the glasses are filled with roots, if they are kept in a cool place. The water should be changed about twice every week, and rain or river water is better than spring water. Although the practice of growing bulbous roots in water is common, it is by no means preferable to growing them in earth. There are many failures when bulbs are grown in water, which are chiefly caused from their being more liable to rot before they begin to emit roots, than when grown in soil. Keeping the bulbs quite clear of the water is a partial, but only a partial, preventive. Another cause is, that when the roots have attained some length, they frequently decay, and the loss of flowers is the consequence. Should success attend the growing and blooming of the greater part of those placed in water-glasses, the bulbs will be good for nothing afterwards; but those grown in pots might be planted the year following in the garden, and they would make pretty border flowers for several years.

Similar treatment to that now described is required for the large-rooted narcissus, whether in pots or glasses.

To force early tulips in pots, they should be placed about three or four in each pot, just within the earth, which may be of the same sort, and the management the same as recommended for hyacinths and narcissuses.

Crocuses will force well. They should be planted near together, say from ten to twenty in a pot, according to size. Let them root naturally after planting, before they are forced into flower. They require similar treatment to the preceding.

In order that bulbous roots, which have been forced, shall not be quite exhausted, they may be planted in the garden, with the ball of earth entire, as soon as the flowering is over, if the weather is favorable. They will thus mature their roots and leaves, and be strengthened sufficiently to bloom again the following season. If bulbs are neglected when their flowering season is over, they will not recover such neglect for a considerable time; but if carefully placed in the garden till their leaves become yellow, when the root will be matured, they may then be taken up and kept in a dry cool place until they are wanted the following season for planting.—*Breck's Book of Flowers.*

INSECTS INJURIOUS TO VEGETATION.

DIPTERA, CONCLUDED.

Cecydomia Tritici is a small gnat, long known in England as very destructive among the wheat fields. The insect and the manner of its depredations are thus described: What the farmers call the yellows in wheat, and what they consider as a kind of mildew, is, in fact, occasioned by a small yellow fly, with blue wings, about half the size of a gnat. This blows in the ear of the corn, and produces a worm, almost invisible to the naked eye, but which, seen through a pocket microscope, appears a large yellow maggot, of the color and gloss of amber, and very prolific. It somewhat resembles a musquito in form, but is only about one tenth of an inch long. Its two wings are transparent and changeable in color, narrow at base, rounded at the tip, and are fringed with little hairs on the edges. Its long antennæ, or horns, consist, in the female, of twelve little bead-like joints, each encircled with minute hairs; those of the male will probably be found to have a great number of joints. Its legs are longer and more slender than those of the Hessian fly. Towards the end of June, or when the wheat is in blossom, these flies appear in swarms in the wheat fields during the evening, at which time they are very active, though they remain quiet during the day, in clear weather. The females generally lay their eggs before nine o'clock at night, thrusting them within the chaffy scales of the flowers by means of a long retractile tube in the end of their bodies, in clusters of from two to fifteen or more. By day, they remain at rest on the stems and leaves of the plants, where they are shaded from the heat of the sun. They continue to appear and lay their eggs through a period of thirty-nine days. The eggs are oblong, transparent, of a pale buff color, and hatch in eight or ten days after they are laid. The young insects, produced from them, are little footless maggots, tapering towards the head and blunt at the hinder extremity, with the rings of the body somewhat wrinkled and bungling at the sides. They are at first transparent and colorless, but soon take a deep yellow or orange color. They do not travel from one plant to another, but move in a wriggling manner, and by sudden jerks of the body, when disturbed. It is supposed that they live at first upon the pollen, and thereby prevent the fertilization of the grain, which becomes shriveled and abortive. When fully grown, the maggots are about one eighth of an inch in length.

The pupa is smaller than the full-grown maggot, of a brownish yellow color, of an oblong oval form, tapering at each end.

According to Mr. Gorrie, the maggots quit the ears of the wheat by the first of August, and descend into the ground to the depth of half

an inch. They probably remain unchanged through the winter, and finish their transformations and come out of the ground, in the winged form, in the spring, when the wheat is about to blossom.

Such are the descriptions given of the appearance and habits of the wheat-fly, by English writers. A similar insect has been observed in the Northern and Eastern States and in Canada. It has been often mistaken for some of the species we have previously described, and it is difficult to determine what effects have been actually produced by this insect. There is, however, no doubt of the identity of this and those seen, in our own country, by Judge Buel, Mrs. Gage, and other well-informed persons, who have communicated facts and opinions in relation to it. Among the partial remedies for the ravages of this insect are, sprinkling the growing crop with lime, and burning sulphur in the field.

The following, in relation to this insect, is taken from *The Progressive Farmer.*

"By referring to some notes, I find that near sunset on the ninth of sixth month, 1852, I noticed hundreds of small flies alighting on the heads of wheat, and apparently depositing their eggs in them.

"Some heads of the wheat which were then in a milky state, were inclosed in a glass for the purpose of observing what would ensue; but being deprived of its nourishment it soon dried up, and no further discovery was made; but at the expiration of six days from the time the flies were first seen, the worm appeared in the growing wheat, and probably at this time entered that state of existence in which it draws its support from the grain.

"On examining the heads of wheat when ripe, it was found that the earliest ones had escaped entirely, while others were partially injured, and the small backward ones were entirely worthless, some containing five or six worms to each grain, or rather the place where the grain should have been.

"It is evident, therefore, that the way to escape this pest is, by timely sowing of early ripening varieties, and by liberal manuring to push it on to early maturity; a course which is also calculated to secure the crop from rust. It is contended by some persons that the white wheat is more liable to be injured—or rather that the worm has a preference for that, while the Mediterranean is nearly exempt from its ravages—which is doubtless true. But I think there can be no question but that the cause of this difference is occasioned by the Mediterranean ripening several days earlier than any white variety that has been introduced here. The Mediterranean has been raised in this country for the last sixteen years, and is preferred to any other kind, although it has a weak stem, and is, therefore, liable to fall, yet it is valued for its producing qualities, yielding on good ground from twenty-five to forty bushels to the acre. J. S."

We have now gone through the several orders of insects, describing the species most destructive to cultivated crops, and a few insects not strictly belonging to that class. But we have omitted many that

ought to be known to the farmer, and many of them injurious to forest trees. These would fill a small volume, of themselves, and if our farmers would take more care of their forests, they would soon learn the benefit to be derived from an acquaintance with the appearance and habits of these insects. But, unhappily, we have but little inducements to furnish such facilities, our forests being chiefly suffered to get along as they can. But we purpose to go on with our subject, reviewing the ground already gone over, though changing the plan of the series, referring to what we have already written, and adding what we deem most important to the practical farmer. We write for practical men, rather than for the student who wishes to learn the science. For the latter, full and properly arranged treatises are essential, though other means of information may be valuable in connection with good text-books.

We may also add that we need much more careful and more extensive observation, in reference to insects, and especially those destructive to our wheat. Their habits should be carefully noted, and specimens preserved, both of the insect and the injured plant, and sent to those who best know how to profit by such means. We should be very grateful to any persons who will forward such specimens to us, and we will in turn give such information as may be in our power. P.

EDITORIAL CORRESPONDENCE.

From copious minutes of a trip westward during the last month, we select the following:

Paterson, N. J., September 22.—This is a thriving village of northern New-Jersey, situated in a rather infertile region, owing its existence to the falls of the Passaic, and its prosperity to the skill and energy of its manufacturers. Its cotton mills, carpet factories, machine shops, locomotive works, &c., &c., tell the story of its growth.

Our object in stopping here, was to seek an interview with Roswell Colt, Esq., a distinguished importer and breeder of fine stock. Sickness on the part of that gentleman, thwarted our purpose in part. Mr. Colt, we believe, possesses ample means. We advise the working farmer of limited means, to possess himself of good stock at something less than importing prices; and at the same time we applaud the spirit of a man in Mr. Colt's position, who freely uses his means to test the comparative value of foreign breeds. His sleep, we presume, will not be disturbed, nor his enjoyment of life lessened, should he lose a few hundreds by the operation.

Though, for a reason before stated, we failed to see Mr. Colt, we were kindly permitted to visit his stock, consisting largely of Alder-

ney cows. Mr. Colt's farmer informed us that the bulls of this race are rather furious; but with reasonable care he thinks them not dangerous. The cows he represents as mild in temper, inclined to be thin in flesh while giving milk, but fatten easily when dry. Many of Mr. Colt's Alderney cows, and several of the heifers even, have made ten and a half pounds of butter per week, of uncommonly fine quality, much of the past season. The quantity of milk is not large, but it is of an exceedingly rich, creamy quality, and of a delightful flavor, admirably adapted to all family purposes. These cows are inclined to milk, giving it with more than ordinary uniformity, so much so, that it is difficult to dry them off as soon as is desirable. They are not the kind to be desired for the general purposes of the farmer. We are, above all other nations, a beef-eating race. Whether we are wise in this, is another question, one which we do not assume to decide. The fact is evident. It everywhere stares us in the face. Americans love beef—roasted, broiled, boiled, smoked, *fixed* every way. They will have it. Consequently we want larger breeds than the Alderney. Some of Mr. Colt's Alderneys, it is true, have attained a good size, are well formed, and apparently hardy. Indeed, several of his herd are such as one might be proud of, aside from their extraordinary milking properties. But the general character of the race is quite otherwise—thin in flesh, high-boned, frail-looking, not such as we wish to see grazing our hills and valleys. Their real value, we have long been satisfied, and are now more than ever convinced, is for family use; and while we hope they never will become the stock of large farmers, and that their blood will be kept aloof from the farm, we heartily commend them to families keeping a single cow, or two at most. If we were to keep one or two cows, they should be pure Alderneys; if we were to keep more, there should not be a drop of the Alderney blood in them. We would not see the meek, sorry, pitiful looking things about us, otherwise than as a pet, to be taken kindly care of, and to make good tea, good coffee, luscious butter, and fat, rosy-faced children. The milk of the Alderneys is exquisite for these purposes; and the fact of their yielding it so equally, throughout nearly the whole year, is an additional reason for the family wanting a single cow, supplying itself with an Alderney.

For the general purposes of the farmer, we venture an opinion, after much investigation, which we *may* find occasion to alter, as the results of still further trial come to light, viz., that for cold regions and poor pastures the North Devons are the best of any thing yet offered; that in regions a little more favored, but not the best, the Ayrshires are preferable; and that the still larger Herefords and Durhams should have the preference, wherever the climate is favora-

le and the soil fertile, as in large portions of the Western and South-vestern States.

Rochester, September 25.—It was not without some regret that ve left the New-York and Erie road at Corning, for this place. o well is it conducted, so comfortable for passengers are all arrange-ients, and so attentive to their duty all in its employ. A more de-irable route from New-York to the West cannot be found. From orning to this place is ninety-four miles by the Buffalo, Corning and ew-York road.

Rochester is very full; three important meetings in addition to a ammoth political convention, being in progress—one, of the American omological Society; a second, of the Genesee Valley Fruit Grow-rs' Association; and a third, of the Munro County Agricultural ociety. The Pomological Society was opened by an address from s President, Hon. Marshall P. Wilder, of Massachusetts. The ad-ress was characteristic of its author—practical, suggestive, in good ste, aiming at the useful, and yet showing a nice appreciation of the autiful, by nature and by cultivation. It was listened to with arked attention, and will, of course, be published. We had not be-re learned the value of these Fruit Growers' Associations. The embers have the appearance of exceedingly intelligent men—uick of apprehension, prompt, communicative. We presume their mployment has something to do with this. Their discussions ere continued several days; and never have we seen men of fewer ords or more facts. It is astonishing, how much may be learned in short time, from men gathered from all over the Union, each stating n the fewest possible words, what he knows of the subject of inquiry. For instance, the Baldwin Apple has long been known to be an ex-cellent fruit. The tree is a good grower, and has been believed to be sufficiently hardy to stand our northern winters. The question came up: Who knows any thing new of the Baldwin? "Nearly every tree was killed in our State by the last winter," said a member from Iowa. "And in ours," said one from Illinois. "In many parts of ours," said another from Indiana. Others replied as briefly; and in less than five minutes it was ascertained what degrees of cold the Baldwin endures; how it bears snowy regions as compared with those equally cold without much snow, &c., &c., facts adapted to show every grower of fruits, with what degree of safety he may invest in the cultivation of this fruit in his particular region. So with regard to other varieties of the apple, and of fruits generally, an immense amount of practical information was elicited, pointing to the appro-priate soil, climate, and treatment for each. We understand that these discussions are to be published as a part of the transactions of he Society; and we should suppose they would be worth ten times

their cost to all fruit growers. Valuable extracts may be expected in future numbers of the Plough, Loom, and Anvil.

Buffalo, September 26.—When last we were in this place there might have been 8000 inhabitants. There are now 80,000. It is well named the "Queen City of the Lake." If it were called the "Queen of the Lakes," Chicago might be out of joint. The Chicagans claim that their city is the greatest grain market in the world; the Buffaloes, as they call themselves, claim that theirs is greater. It has grown up as cities grow in no other country, and is a beautiful city. Geographically it is as large as New-York. The reason is, that the people have kept themselves a little apart—have laid out wide streets, and left open spaces about their dwellings. These measures are partially a substitute for public squares. They secure pure air at home, and consequently make it less desirable to go abroad for it. We think, however, they will sooner or later be sorry that they had not reserved more land for parks and open squares.

Hamilton, C. W., September 30.—After a pleasant sail of twenty miles down the Prince of Rivers, to Niagara Falls, and after gazing the best part of a day at that greatest of all *lions*, roaring, foaming, shaking his shaggy mane, and opening his remorseless maw wide enough to swallow all that comes along, we crossed the suspension bridge afoot and alone, traveling bag in hand—it did not break down with us—and took an accommodation train for Hamilton, with a view there to await the next morning's express. This being hurried off at sunrise, half dressed and half fed, is not what it pretends to be. By the way, how long have those waters been tumbling down that stupendous precipice? How long has it taken them to gash the earth's rocky crust seven miles in length and five hundred feet in depth? We forgot to ask, and perhaps the *guides* could not have told us. If Moses implied that the work has been done in six thousand years, we should have hard work to believe even Moses. But fortunately for our belief in revelation, Moses implies no such thing.

Hamilton is a beautiful town—a little English and a great deal American in its appearance—of perhaps 20,000 people, situated at the extreme south-east corner of Lake Ontario. On arriving at this place, a host of carriers tendered their services, anxious, like *omne id genus* everywhere—a very useful class, certainly—to carry us to the very best hotel. Attracted more by the name than any thing else, we took the omnibus of the "Anglo-American Hotel." Whether others are better we know not. This is good enough. It is kept by C. S. Coleman, Esq., brother of the Messrs. Coleman of the Astor House, New-York, and of the Burnet House, Cincinnati. Its arrangements are truly Anglo-American, combining the very best traits of English

hotel-keeping with the best of American. To our *notion*, every thing here is about as it should be, from the stately building and airy rooms down to the tender steak and the sharp knife to cut it with. It would seem as if caterers might learn that a trifle invested in the sharpening of knives contributes more to the satisfaction of their customers than a like amount invested in any other way.

Hamilton is the shire town of Wentworth county. The Provincial Agricultural Fair was last year held at this place. Next year, it is to be at Brantford, the county town of Brantford, the next county west.

Detroit, October 2.—London, on the road from the Falls to this place, is a beautiful and thriving town, in the midst of a fine wheat region. It has several flouring establishments; is the shire town of Middlesex county, and is destined to become of considerable importance. But what business has it with its name? One London is enough for one world. It is silly to undertake another. A little boy in the cars, on hearing its name, asked, "What! are we going through that great city?" We advise the *Londoners* of Canada West to change their name by the aid of their next Provincial Parliament. It will save a great many little blunders. The name is in no better taste than that of a little hamlet on Long-Island calling itself by the pretentious soubriquet of Eastern New-York.

The people of Canada West are, in appearance, general manners, style of building, &c., &c., so much like Yankees, as to make one feel that he is not far from home; and yet so far unlike as to produce the feeling that he is not exactly at home. The Great Western Road from the Niagara Falls to Detroit is doing an immense business. We believe it affords the shortest and best route between the East and the far West. The road is excellently managed. The quiet, noiseless way which these Canadians have of doing up things is an *example*. One hears very little swearing. We wish there were none. Why should Americans be the most swearing nation under heaven, and Englishmen next? We see no absolute necessity for it, and yet such is the fact. You would want to stay in London a month and in Paris a year, to hear as much profanity as you would hear in New-York in a day.

Statistics show that Canada West is advancing in the culture of wheat faster than any State in the American Union. In some portions we perceive, in passing, a neatness of cultivation that is worthy of imitation. Drill culture we see prevails. So far as we could judge, by a glance at the farm buildings in passing at railroad speed, our Canadian neighbors are not making that provision for the winter care of stock, which their cold climate and abundance of building materials would indicate as their true policy. Growing wheat, as almost their

sole business, selling all from the land, maintaining few buildings, keeping little stock, and doing nothing to sustain the fertility of the soil, will not make them permanently prosperous. We see they are exporting twenty-seven millions' worth of various articles a year, and importing forty millions' worth. This does not indicate that they are growing poor to the tune of thirteen millions a year, for undoubtedly their real and personal estate is rapidly increasing in value; but as their neighbors and kind friends, we could wish the balance less against them.

Detroit is certainly a goodly city. It has now upwards of 60,000 people, and we understand is growing, but not rapidly. It is at present the center of abundant gatherings, political and others. The State Agricultural Fair is the principal. More gentlemanly persons than its officers, Messrs. Shoemaker, Holmes, Backus and others, we have nowhere found; and as our first observations on such an occasion pertain to the people, we must say that the Michigan farmers, here assembled, strike us favorably. In no place, where we have attended these gatherings, have we witnessed more general decorum, or seen less of intemperance, profanity, and other vices. We cannot, in consistency with truth, say that none of these things appeared; but, in justice to our Michigan friends, we will say, that for some reason, either because our eyes and ears were occupied with more pleasing occurrences, or because the vices we complain of were not rife, we saw less of them than is usual on such occasions farther east; and we believe that every thing which the officers of the Society could do, was done, to make the occasion one of high social enjoyment and of valuable improvement to the multitudes assembled.

Owing to the severe drought, and perhaps in part to political excitement, the agricultural products exhibited are said not to have equaled those of last year. Horses seemed to be the most attractive feature of the exhibition. Not more time was given to them than the importance of the subject would warrant, but more than was consistent with a due attention to horned cattle, sheep, swine, agricultural implements, machinery and domestic manufactures. Mr. Osborn Blackmer, of Hillsdale, exhibited a large number of both Durhams and Devons, very fine. J. B. Crippon, of Coldwater, exhibited some remarkably fine Durhams; and C. H. Williams, of the same place, exhibited some as fine Devons as we have ever seen. There were a few grade cattle of great merit, as also of French merino sheep, Spanish merinos, South Downs, and Leicesters, and of Suffolk, Essex, Berkshire, and grade swine. Among agricultural implements we noticed a new seed-sower, manufactured at La Porte, Indiana, with drills reversed, which, we think, must be as good as any other for feasible land, and all the best yet invented for lands that are rough.

We felt considerable interest in the trial of female equestrianism, which came off on the last day of the fair—an interest arising from a belief that American women do not, as a general thing, take sufficiently varied and exhilarating exercise. Why should the race be dwarfed or enfeebled for the want of a proper physical development on their part. Probably no other nation is so unwise in this respect. To manage a horse skillfully, and to ride with ease and grace, is a valuable accomplishment. Nothing is more conducive to health. In the physical education of both sexes it should have a prominent place, and we are glad to see that some of our Western women know how to manage a horse with spirit, and to ride as if they were used to it. Whether there is any impropriety in ladies displaying their skill in this line on such occasions, others must judge. We confess that to see fifteen thousand pair of eyes gazing at only five ladies, seemed to us rather out of proportion. Had five hundred, instead of five, divided so many staring eyes, we cannot see why they could not have been very much at ease, nor that there would have been the least impropriety in the exhibition, even in the eyes of the most prudish; and we would suggest to the committee, that it would, perhaps, be well for the ladies either to turn out *stronger*, or not at all, on future occasions. It should be understood that fast riding was no part of the game. Our Michigan friends commended moderate riding to the ladies. Was it because they wished to do all the fast riding themselves? We have some fears that so many trials of speed at our cattle fairs will make fast men, but we sincerely hope that nothing of the kind will make fast women.

Ann Arbor, *Jackson*, *Marshall*, *Kalamazoo*, and *Pawpaw*, are fine, thrifty towns, on the Michigan Central Railroad, which is well managed, and with the Canada Great Western forms, probably, the best thoroughfare to be found between the North-East and the North-West. But what a city is this Chicago! Twenty years old, a hundred thousand people, growing daily! We should judge that fifty buildings are now in process of erection, mostly of the first-rate stone, some of Milwaukee brick, and many with iron fronts, every one of which would do credit to the best parts of Broadway, in New-York, besides other buildings of less pretensions, enough in all, we learned, on good authority, to give a front of seventeen and two-third miles in length, if placed in a solid block—a pretty good summer's work, it would seem. We cannot say that Chicago seemed a pleasant place, yet we have no doubt it appears so to a business man. The stir and bustle of Chicago is equal to that of our most enterprising Atlantic cities. The buildings now erecting are equally as durable and more elegant than at the East; and there is no very good reason why an Eastern man should not come away satisfied, if he escapes being run over, in the rush of business, or having his hat blown off by the lake winds

to be carried under a train of freight cars so long that the naked eye discerns neither end, or into one of those deep, narrow rivers or canals, which permeate the whole city, constituting its docks. Chicago is as likely to be the third city of the Union as New-York is to be the first, or Philadelphia the second. So we venture to predict; and we will also venture another prediction, though with less confidence, namely, that when the Chicagans shall have executed the magnificent system of drainage now in progress, and temporarily a great nuisance, because it turns most of their city upside down, and besmears the rest, and when the adjacent lands are brought under cultivation, and thorough-drained, Chicago will be among the very healthiest cities in the country. Aside from the exhalations of a low, and yet imperfectly cultivated region, every thing conspires to make it healthy; the same lake breezes which set one running after his hat, and turn his umbrella inside out, thoroughly ventilate the city; and such is the climate, that it can hardly fail to become desirable as a place of residence, while it must continue to be an increasingly important business center.

Madison, the capital of Wisconsin, is something like 150 miles north-west of Chicago. Here is the State University, a richly endowed establishment, we believe, but not as prosperous as Beloit College, a few miles south of it. Janesville, on the way from Chicago to Madison, astonishes one who reflects that, but a few years ago, the ground on which it stands was trod only by the Indian hunter. Who would have thought of finding here private residences, built at a cost of 50,000 dollars; hotels hardly less substantial and capacious than the Astor House, of New-York, and churches enough to indicate that the people *may be* as religious as they are energetic? Cromwell *prayed* and kept the *powder* dry. We rather "guess" these Western people *pray* and make *money*. Madison is a pink of a place, situated on a delightful elevation between two lakes, and, we believe, is as healthy as it is beautiful. It contains 10,000 people, and is growing slowly. The Legislature was in session. From a somewhat brief look upon the law-makers, we fancied they were discussing questionable measures with the three million acres just granted for railroads; but as we have no right to report upon mere suspicion, let that go. The *Wisconsin Farmer* is published here by Powers & Skinner, and is a journal of which the farmers of the State may well be proud, as we believe they are. The senior editor, Mr. Powers, is a practical farmer, having a farm of 640 acres (a section), near the city. Of the land about Madison, Janesville, and Beloit, we hardly dare speak till our surprise has had time to cool off. Some of it, however, is rather poor, being either swamp or oak opening; some has insufficient wood and water; but of the greater part, we will only say

we see not how it could be better. A favorite expression with the people is, "It cannot be beat," and we believe it is true.

Of Milwaukee, and the State fair held in that place, we have space only to say that the city, like others in that region, is remarkably large of its age, and that the fair would have done honor to many an older State. We have always supposed these Western people great brags: and we told them so, and they do not deny it; but then they say, "You see we have something to brag of." We thought as much. Mr. Powers, of the *Wisconsin Farmer*, told us on the show ground, in reply to the question, "How is it that rum, whisky, ale, and all that intoxicates, are so rife here, and yet few drink, and none are drunk?" that strong, Western good sense prevailed. He said that the people of Wisconsin had found out that drinking "don't pay," meaning, we understand, that they consider the benefits not equal to the evils, and so, as in a business matter, they let it alone. This was a noble testimony, if true; and our observation, at fairs and other gatherings, went far to confirm its truth.

After spending some twenty days in the West, and making ourselves as busy as possible in their matters, and extending our observations as widely as the time permitted, we came away with the *hope*, we may almost say with the *belief*, for there is more to sustain such a belief than we have space to detail, that the human race is about to develop itself in those Western States, in a style of manhood not yet witnessed. There is land, such as the Almighty has made no better; there is a vastness of extent, adapted to expand the mind of man, as in no other country; mighty lakes and rivers, boundless prairies, untold sources of wealth to be developed, and a climate adapted to make man unconquerable; all conspire to results cheering to the heart of the patriot and the Christian. We see not why industry, education, religion, learning, are not in as rich promise in the West as in the Atlantic States. Families at the East, who have enough, need not be discontented. We do not advise them to forsake the graves of their fathers. If those who have more enterprise than wealth, choose to follow the Star of Empire, none should forbid. It will be well for those who go and those who stay. The West will unquestionably increase, but it will be without a corresponding decrease on the part of the East; and we say to the kind friends who have entertained us there, we have much to rejoice in at home, and we will never envy your prosperity. N.

[SEE PAGE 307.]

SORGHUM SACCHARUM, OR SUGAR MILLET.

In view of the high price of sugar, present and prospective, the New-York *Tribune* says:

"It is clear that the annual production of sugar must be increased —but where? and how? The severe cold of last winter destroyed a great deal of cane, and practically diminished the area of tropical cane-growing soil. India and the adjacent regions of Southern Asia might produce more sugar, but their people are very slow to change the direction of their industry, while those of Spainish America have little industry of any sort. There is more sugar land in the West-Indies, but it is mainly wilderness, which can only be converted into cane-fields at heavy cost and by severe labor—of course quite slowly.

"In view of these facts, inquiry has very properly been made for saccharine plants adapted to the temperate zone, and which may be profitably employed in the production of sugar. Until some plant of this sort is found and extensively cultivated, it is not probable the price of sugar, as measured by that of wheat, beef, and other edibles, will be essentially reduced. With the prospect of an active demand and a high price for sugar through several years ahead, it seems but reasonable that the sugar-producing area should be enlarged, if that be found practicable.

"That there is no lack of plants from which sugar may be made, is well known. Indian corn, the rock maple, and some other trees, the beet-root, and sundry other esculents, contain and yield sugar, but generally at a cost above that at which it can be extracted from the cane. There is, therefore, a real and realized demand for a sugar-producing plant which may be grown in temperate latitudes, and which will yield nearly or quite as bountifully, in view of their relative cost, as the cane.

"These requirements, it is believed, are satisfied in the *Sorghum Saccharum*, or Sugar Millet, which has for ages been cultivated as a sugar plant in China and in Southern Africa. Our attention was first called to it in Paris last summer, by a gentleman who had grown it for years in Natal, (South Africa,) where, as in China, it had been cultivated for sugar-making from time immemorial. His confidence in its adaptation to temperate climates was very sanguine, and he gave us some account of it, which was promptly embodied in a letter to the *Tribune*.

"Before this, however, the *Sorghum* had attracted attention in this country, mainly through the efforts of Mr. D. J. Browne, the Agricultural chief in the United States Patent Office, who gave some account of it in his report for 1854, and we expect to find a much fuller description in that for 1855, should it ever get published. Mr. Browne, we believe, obtained the first seed from France, and distributed it eighteen months or more ago. He had full-grown stalks of the plant on exhibition in the Patent Office last winter, and distributed a large quantity of seed to Members of Congress and others, last spring. This seed has nearly all been planted this year, and with results generally encouraging. *The North American* says:

"'A paper called *The Statesman*, published at Calhoun, Georgia, says that a Mr. J. Peters, of that place, has made this season about

three hundred and twenty gallons of good sirup from the juice of the Chinese sugar millet, and asserts that, with proper cultivation, four hundred gallons of sirup may be obtained from an acre of millet. A person at Newton Center, Mass., as we learn from *The Boston Traveler*, has cultivated some of this millet this season, and made a quantity of excellent molasses from it, and it is stated that it can be cultivated in New-England as successfully as Indian corn. It thus appears that this plant is adapted to all parts of the Union, as much as wheat and corn. In the present juncture, when the price of sugar is so high, it might be to the advantage of the agriculturists of both sections to attempt its cultivation on a large scale. The process of manufacturing sirup is simple, the stalks being run through between a pair of heavy rollers, the juice received into tubs, and then boiled down into sirup or molasses. There does not seem any relief in prospect for our sugar market, unless the cultivation of some new sugar crop like this can be resorted to at once, and hence the interest felt at the South in all plants of the kind. The success which has attended all the experiments made with the Chinese sugar millet renders it worth a trial, and we trust the enterprising farmers of Pennsylvania, and the planters of Virginia and the South, may undertake it. If successful, the profits would be quite large, with the present market rates for sugar. In fact, the crop would be just now more remunerative than any other.'

"We have seen this *Sorghum* growing and nearly ripened this fall in divers sections of our own State and Northern Pennsylvania, and estimate its average hight in good soil at fully ten feet. Our own little patch will average more than that, but a high wind knocked most of it down more than a month ago. That it is destined to prove one of the best fodder plants, we have no doubt; but we fear it will not usually ripen its seed much north of this city. But the seed, like that of broom-corn, is small and light; enough of it to seed an acre (for sugar) would hardly fill a four-quart measure, or weigh six pounds. If grown for fodder, it should of course be sown much thicker. We have no doubt that it will pretty uniformly ripen on all the New-Jersey soil that will produce sweet potatoes or melons, and that every Northern farmer will find his account in growing at least an acre of it for fodder alone, even though he be obliged to buy his seed. That it will prove profitable southward of this city, cannot be doubted.

"We have tasted the sirup made from *Sorghum*, and find it quite palatable. We trust our farmers will cautiously enter upon its cultivation; though we do not believe any sugar will be made from it at a profit for several years yet. Inexperience, want of the requisite machinery for crushing, boiling, refining, &c., with the necessarily high price of seed, seem to stand in the way of any immediate realization of the sanguine visions of the seed-sellers. But if each enterprising farmer will obtain a little seed next winter—through his representative in Congress, if he cannot procure it otherwise—and plant this at Indian corn distance in the richest, warmest land he can devote to it, he may grow a fair supply of seed next year, and satisfy himself by experiment that his cattle will eat the stalk and leaves with avidity. Two years hence, he may grow a considerable patch, save the seed, and feed the stalks; and now he may begin to think of sugar-making if he shall meantime have thoroughly informed himself with regard

to it. If we can avoid a multicaulis fever with regard to *Sorghum*, we shall soon find it a valuable addition to the staples of our Free as well as Slave State Agriculture."

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

OBSERVATIONS.

MESSRS. EDITORS:—Having spent the past week in the towns where a considerable part of the cheese so much in demand in Boston market, called Worcester county cheese, is made, namely West Brookfield, New-Braintree, Hardwick, Barre, Petersham, &c., I am moved to send you a short account of my observations for publication, should they prove worthy.

The above towns are chiefly agricultural towns, and bear a strong resemblance to each other, being considerably hilly, and having a strong soil with a pretty plentiful supply of rocks. They are better adapted to grazing than grain-growing, yet they produce good crops of grain with considerable labor.

It is said that "for all kinds of stock and agricultural products, this section of the State justly takes the lead." How this may be, I will not attempt to say, but the farmers may justly be proud of their stock, and proud of their Agricultural Societies, that have caused such great improvements to be made in stock-raising.

Worcester county has four growing Agricultural Societies, which are doing for the farmer's stock what the Farmers' Club and Agricultural Library stand ready to do for the farmer's mind, if he will but call in their services.

While the farmers have been making money the past few years, their land has not been growing poorer, as I am afraid is too often the case with grain-growing farmers. This is doubtless due more to the nature of the land and crops grown, than to the farmer, whose inclination to realize ready cash at the expense of mother earth, is as great as that of the grain-growing farmer. He has, no doubt, wished, during the past term of high prices, that his land was clear of stone and so constituted that it could be ploughed with less team and hoed with less labor, so that he could raise grain that could be sold as soon as harvested, instead of crops so bulky that they had to be manufactured into butter, cheese, beef, and pork, before they were salable. But he may live to see that causes beyond his control have forced him to pursue a better course than he would otherwise have done. An intelligent farmer informed me that farms could be purchased in this district for less money than the buildings and fences would be worth out West. Is not the time coming when those enterprising young men who have left the handsome two-story

house, the long barn, and well-watered fields, that were prepared for their occupancy by a former generation, for the wild land of the West, which some speculator has made them believe is worth nearly as much in the state of nature as the improved land they left—will see that they have made a grand mistake at some period of their lives? YEOMAN.

Young farmers who have a capital equal to managing those dairy farms in Worcester county, Mass., advantageously, will do as well there as at the West; but those who have not will do better in Illinois, Wisconsin, or Iowa. There can be no doubt on this point. If they have to live in an inferior house for a while, their prospects are fair for a better one by-and-by. We say this, having just returned from a short trip to the prairie regions, and with full confidence that there the school, the church, the college, every thing that can secure a magnificent development for the human race, is to go hand-in-hand with the teeming exuberance of the soil. N.

THE SUGAR CROP.

A FRIEND at the South writes us a letter, from which we extract a portion, as follows.—EDS. P. L. & A.:

ASSUMPTION, September 27th, 1856.

DEAR SIR: The cane crop will be very small this season. In some parts of the State there is scarcely enough for seed, owing to the unusual cold weather of last winter, which destroyed all the stubble or rattoons, and a large portion of the canes which were put away for seed. It is generally believed that the crop will not exceed seventy-five thousand hogsheads, and some state it as less. I am of opinion that it will not exceed that amount, which will be less than the fourth of a full crop.

The memorable storm of the 10th August injured it materially in many places, by blowing it down, and stripping it of its blades. You may hear from me again before long, when I hope to be able to send you the names of a few more subscribers.

TO APPRENTICES.—When serving your apprenticeship, you will have time and opportunity to store your mind with useful information. The only way for a young man to prepare himself for usefulness, is to devote himself to study in his leisure hours. First, be industrious in your business—be frugal—be economical, never complain that you are obliged to work; go to it with alacrity and cheerfulness, and it will become a habit, which will make you respected and beloved by your master or employer; make it your business to see to and promote his interest; by taking care of his, you will learn to take care of your own. Young men at the present day are not fond of work. You must avoid all wishes to live without labor; labor is a blessing, instead of a curse; it makes your food, clothing, and everything necessary, and frees you from temptation to be dishonest.

Mechanical.

THE UNION OF THE PLOUGH THE LOOM AND THE ANVIL THE ONLY SOURCE OF GREAT NATIONAL WEALTH.

THE discussion of the subject announced in our caption is attended with one difficulty which is quite worthy of a moment's consideration. Whenever we begin to exhibit the condition of a people destitute of the arts, we are met by the objection, that no civilized community exists which does not encourage them, to some extent, both in their theories and in their practice. Hence suppositions which imply the entire neglect of all arts, or even of all the higher arts, are comparatively powerless upon the mind of the reader, and are regarded as ultra and extravagant. Perhaps the suggestions at the close of our discussion in the last number, (pages 233 and 234,) were considered as mere idle word-painting, descriptive of no school in political economy, and without any living example. Whether this is so will appear in the sequel.

But analyse this objection, thus urged, and it will be found to admit as unquestionable that, to a certain extent, the arts MUST be encouraged. They are therein acknowledged as absolutely essential to every stage of true civilization. When this is once admitted, we have at least gained something, for then the only question that can be considered as open is, To what extent should this encouragement be given? If we are not substantially in error, a few facts, perfectly well known to all, ought to remove every doubt as to the truth of the doctrine we so often inculcate on this subject.

Great estates can only be acquired by large profits on small sales, or by comparatively small gains in a very extensive business. We care not whether you examine one form of industry or another, in testing this position. No man who has ever accumulated property, will dispute it. Let us first take the latter condition, and suppose that the farmer has a great many customers. Every producer supplies numbers of consumers, and the products of his labor are in so great demand, that he is perfectly safe in raising large quantities of them, and in anticipating some profit on every thing he produces. But who are these numerous purchasers and consumers? Are they all of one class of artisans? Are they all manufacturers of cotton goods? Where would they find customers for those immense quantities of cotton goods? Are they all woollen manufacturers, or all carpenters? Are they all masons, or all blacksmiths? In these supposed conditions, among so many competitors for a limited market, how can all

live? Such competition would insure the ruin of every man of them. How could the land-owners expect to get even small profits from those who are obliged to labor at any price they can get? Such a condition of things would ere long ruin even the farmer, for his customers would soon become beggars. The entire class of artisans must come down to "ten cents a day," to use the phrase of political disputants, becoming a poor specimen of European peasantry, living only by the sufferance of the land-owner whose grounds they occupy without rent.

A *limited* increase in the variety of pursuits, would of course be proportionally limited in its beneficial effects.

A great variety of pursuits is then absolutely indispensable to the accumulation of large estates, unless, according to the former supposition, large profits can be obtained from comparatively limited sales. Let us, then, suppose these conditions. Let the farmer anticipate a large income from sales to a limited number of consumers. The first difficulty that meets us is, that all these surplus artisans must turn farmers, producers, competitors of those whose condition we have just een considering. But though the first, it is neither the last, nor the most formidable. Under the free trade system which these men always contend for, the world would be searched, as with a candle, for a country or community that could produce and sell at a lower rate than would be practicable under this theory of large profits on limited sales. Nor would it, perhaps, be difficult to find such a community. But we pass this by, and inquire what prices must be demanded by the cultivator of the soil, which will enable him to accumulate wealth from so limited a number of customers? If you carry this policy of high prices too far, it becomes suicidal, for the few buyers themselves become producers, quite satisfied that they can manage as well as their neighbors. Giving half their time to the cultivation of the soil, and growing their own crops to the extent of their own wants, and working at their trade the other half, at speculating prices, and with the fidelity of speculators or jockeys, genuine shavers, living on the principle of *sauve qui peut*, or *get what you can*, and where then are your rapidly growing estates? And what is the condition of the arts? Exactly as we described it in our previous essay. The skill of the artist is gone. Pride in his vocation is no longer an incentive to secure the best workmanship, and you must be literally buried "in a rough box." "It does not pay" to learn to be skillful, and hence none are skillful. If you should connect with this plan the idea of paying, for the labor of the artisan, prices corresponding to the prices you demand for the products of the soil, and thus encourage high art, you utterly fail in the accumulation of a large property, and are in no better condition than before. An acre of ground will not secure any greater returns than under another system.

But again, we might ask, and wait long for an answer, How is it that artisans can be supposed to be able to pay so high prices? They can pay no more than they receive, and they must first tax landowners an immense sum before they are able to pay an immense sum for what they need. There is a fatal defect in this machinery, even though all our other difficulties should prove to be imaginary.

We have thus hit upon the real difficulty, as exhibited in actual, every-day life. Farmers must find purchasers able to pay remunerative prices, and they must have a market of almost unlimited extent, or limited only by their ability to supply it. Then, and then only, they can add much to their wealth by agricultural labor. Now, how is this market to be obtained? There is but one way, and that way is to encourage the cultivation of the arts, even beyond the necessities of the community where they are practiced, if possible, and thus not only secure a market for their own artisans, whom they have induced to settle among them, but for the artisans of other communities. Then we have established distant and foreign commerce. This brings in a new class of artisans, and increases the demand for those classes already established, and thus again the demand for agricultural products is increased. A new market is also opened, to wit, for forest trees, and here again is a definite per centage added to the value of land, if its growth can be used for ship timber. And where does this increasing progression terminate? What is the last term of this ascending series? No community has yet found it. It has changed the value of land from a few dollars, or cents even, and we might say from nothing, to thousands of dollars, as in this city and elsewhere; and what will be the highest value of land, or what quantity, what extent of land, can be made to represent those immense sums, per acre, who can tell us? Probably we have learned by experiments long ago, and oft repeated, what values can be given to land shut out from such advantages, and the result is by no means commendatory of the system we have here and elsewhere condemned. But who can assure us that the arts have done their utmost, in any community, and under any circumstances, to bring in and heap up wealth, both for the farmer and the artisan?

Deprived of these facilities of trade, tillers of the soil cannot amass wealth. Even now, the small farmer often finds it difficult to live as a man should live, cultivating his better capacities, and gratifying his tastes, and indulging in the higher amusements, so useful both to the body and the mind. By diligent labor with his own hands, he may feed himself and his family, as he does his cattle, and with his small surplus products, pay for the additional labor his fields imperatively demand, and purchase his coffee and sugar and other necessaries which his own land will not produce, for his table. But he cannot educate his child-

ren as he would, nor buy books for his family, nor even afford such agricultural periodicals as he would like and much needs, to show him how to make the most of what he has. Even for the more costly and valuable implements of husbandry, he may be dependent on his neighbor, who equally needs a similar favor in return. If they had still fewer customers, and could command only still lower prices for their crops, a necessary result of a contracted market, these farmers would be in a condition that no man would envy. They would scarcely be recognized as the originals of those glowing pictures of the independent and happy tillers of the soil, so often met with in orations.

But the theme is fruitful of thought, view it as you will. We have yet scarcely touched upon the inquiry, How are the arts to be encouraged? nor, Under what circumstances will they best answer the ends in view? And we can only suggest now, that the farmer cannot well afford to carry his product to distant communities, nor beyond the seas, nor to pay others for doing so. If there are ten, or a hundred, or a thousand, or ten thousand artisans to be fed by the products of his and his neighbors' fields, who can doubt that it would be better for him and his neighbors, if those artisans would come from across seas, and elsewhere, at their own expense, and live among them, and be of them, and, without even the cost of an express wagon, furnish each other with a good home market, at each man's door? Can any man, who forgets for one moment his *party platform*, entertain a doubt on this point? P.

MECHANICAL EXHIBITION OF THE AMERICAN INSTITUTE.

We have seldom, if ever, seen so capital a show as this. Almost every variety of machine that can be thought of, has here its representative. We have space and opportunity for the description of only a few of these ingenious inventions, and shall add to this list, from time to time, as circumstances will permit. P.

STEAM PLOUGHS.

Two plans are exhibited: one, a drawing without a name attached, is a locomotive, driving a row of ploughs or cultivators. It is of no merit except as an expression of the opinion of an unknown person, that a locomotive-drawn plough is the best mode in which steam can be applied to this purpose. The other is a neat model by Alvin Adams, of Massachusetts. He applies water instead of steam in his driving cylinders, which operate upon a crank axle, as in the inside-connected locomotive. The water is forced into a pressure reservoir by a Worthington steam pump, which takes its steam from a boiler of the locomotive pattern. We have no doubt that this arrangement will work so as to demonstrate the feasibility of steam ploughing; but we see no advantage in the

roundabout way of working; on the contrary, there are great disadvantages. First, the Worthington pump does not work expansively; but steam worked expansively to the extent practicable in such engines, will do double the work it can do without expansion; and the friction of the water cylinders is so much more to be deducted from the effect. If Mr. Adams will apply his steam in his driving cylinders, his machine will come near to what we regard as the best plan; and if he will put them outside, thus avoiding the expense of a crank axle, he will, we think, come as near the mark as any plan we have yet seen.

P.

STEAM STAGE-COACH.

J. K. Fisher exhibits a plan of a stage for twenty inside and twenty outside passengers; and proposes a subscription of $3000, a third of which is subscribed, to build it. Two thousand dollars will so far complete it as to test its powers; and it is estimated that $2400 will pay the total cost; but he deems it imprudent to start upon the amount estimated. This carriage will test the applicability of steam power upon the worst roads to which it can be applied with economy, and of course it will test it on city pavements and good roads; and, although such a machine will be necessarily expensive for ploughing, it may be tried for a day for that purpose; and as it will have power to draw two or three ploughs, it will serve as a partial test of the economy of this application of steam. With this view, we hope some of our liberal readers will send us their names to be added to the subscription list, for as much as they are willing to contribute to an enterprise which will, in all probability, be of great use to the public, but which speculators seem to apprehend cannot be made the subject of a patent monopoly, and therefore can be of no more use to them than to the public generally. In this state of the case, it will be wise for those who own land, to be efficient and prompt in promoting what, if successful, will inure so much for their benefit. Any number of dollars may be subscribed, which may be safely invested, and we shall be happy to act as agents in such a work. Twenty fine paintings, valued at more than the amount required, by the judges on the fine arts appointed by the managers of the fair, are pledged as security against loss; and the stock of the patent right will be divided between the inventor and the subscribers, by judges appointed by the trustees of the American Institute, in case the parties should fail to agree.

We have in former numbers advocated this invention, and shown that the notion that it failed in England in consequence of its inability to compete with horses, is erroneous. It failed simply because the House of Lords, by rejecting two bills which the Commons had passed to relieve it from prohibitory tolls, convinced capitalists that they were determined to crush it; and this they did, for the same reason that they kept up the Corn-laws, namely, to keep up the rent of their lands. The invention, though probably as imperfect as were the railway locomotives of that time, was declared by a committee of the Commons, to have been proved capable of working with profit at half the usual fares of horse-coaches; and to have attained a speed of more than twenty miles per hour with nearly full loads of passengers.

The question for speculators now is, not whether it will run cheaper than horses, but whether the patentable improvements will enable them to secure a

monopoly of the invention. If they are not confident that this monopoly will be secured, they will not invest in it—it would not pay them. But the questions for landholders are: will it give us a quick and cheap travel to market? will it help to introduce the steam plough? will it work on something less costly than rails, until there is traffic enough for rails? and shall we wait for mechanics and speculators, who have, comparatively, little interest in it, to start it, and thus lose twenty years, it may be, in addition to the twenty already lost since the invention was proved capable of giving a speed that nothing but the railway can equal?

The combination of the locomotive and the iron road, is undoubtedly better than the combination of the locomotive and the common road; but the latter combination is not therefore to be neglected; on the contrary, it would have been better that only half the railways, and those the trunk lines, had been built; and the locomotive in a light form, had been put on the common road, thus making it an efficient feeder to the trunk lines. This policy would have made the trunk lines more profitable, and saved the total loss of all that has been expended on the permanent structures of about half the railways. Business would have grown up; actual experiment would have indicated the time and place when and where to improve the road by planks, timber, or stone tracks, or by rails; and steady progress would have been made, with gain to all parties and loss to none. But what is the picture we now see? A quarter of the railways carry an average of less than twenty-eight passengers per train; 4500 lbs. is the average gross weight per passenger; and eighty-three cents per mile per train, or three cents per mile per passenger, is the cost of transportation. Now, we believe, that a single steam carriage could do the average work of these trains at a cost of thirteen cents per mile, and with an average speed, taking the terminal distribution into account, very little less than that of the railways. P.

MANUFACTURE OF FEATHER DUSTERS.

The diversity in Northern industry, which is so conspicuous to any observer, is one of the peculiar features of the Northern States. And it is their life. If they were confined to a single kind of manufacture, the result would be disastrous in the extreme. It is this variety which secures to those States their real independence. An embargo might be laid on all foreign trade, without a great interference with a regular supply or demand. Among these manufactures, we have been interested in attaining the following facts, in reference to that valuable article, Feather Dusters.

The feathers (ostrich or vulture) are imported from South America, (Buenos Ayres,) and arrive in bales from 650 lbs. to 850 lbs. The first operation is to wash, dress, and dry the feathers—afterwards they are assorted and measured according to the length in inches. The handles (of common kind) are of white wood—some of which are stained and others japanned—which is mostly done by the manufacturers themselves. Some handles, however, are of rosewood some of maple or black walnut, and even sometimes of ivory. The handles being painted and varnished, are bored, on the good workmanship of which the principal appearance of the brush depends. After this the feathers are taken

in bunches large enough to fill the holes bored in the handle, and pitched in with a peculiar mixture, chiefly consisting of pitch. Next, the leather cap, which is pinked and gilded or stamped by the manufacturers themselves, is put on, and the brush is ready for sale. For colored brushes, great care is necessary to produce a good color—the dyeing of feathers differing entirely from dyeing woollen, silk or cotton goods. There are at present four manufactories in this city. The goods which we have noticed in the Fair of the American Institute, are from that of L. G. Hansen & Co., 176 Front street, of this city.

The Dusters are at present sold extensively in this city, and also largely exported to other States and countries. The feather duster manufactured in America is altogether a different article from those made in France, and imported here to some extent. The "American" are made on a better plan, last longer, and are far better to use as a dusting brush. There is so much competition in the trade, that prices run quite low. P.

Fig. 1

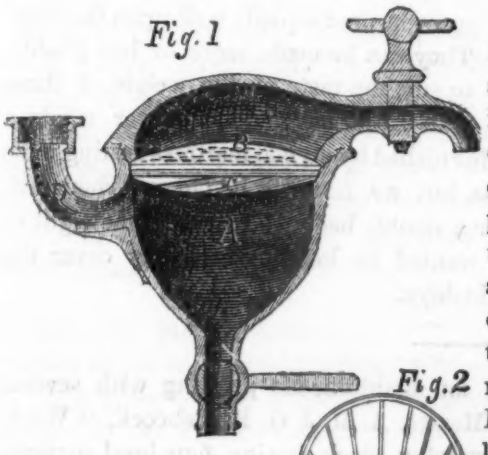


Fig. 2

Wright's Patent Excelsior Water-Filter is better, in our judgment, than any filter we are acquainted with. It is so arranged as to cleanse itself from every impurity merely by changing the current of water from one discharging pipe to the other. A is the shell of the filter. The filtering medium consists of a piece of felt or flannel, or other suitable substance placed between a perforated disk, B, and a barred ring, C. The water enters through D. If filtered water is needed, the lower stop-cock is closed, and the water rises and passes out through the upper faucet. Unfiltered water can be had at any time, by opening the lower faucet. The bars in the ring, D, serve to direct the water across and against the bottom of the felt or other filter, when the lower cock is opened, and thus to sweep off the matter separated by the filter. The form here shown is chiefly intended for city use. Mr. Wright's office is at 835 Broadway. P.

Breech-Loading Cannon.—A Mr. Barnes, of Lowell, Mass., has invented a gun about two feet long and about an inch bore, at the breech end of which there is an arrangement by which a man can turn a crank like a grindstone, and discharge it as often as he can drop a cartridge into a hole. By turning this crank the cartridge is taken from this hole, and forced into the breech of the gun, which opens to receive it, and then closes. The gun is capped, fired, and swabbed out, without the least danger to the gunner from premature explosion. The caps are put on to a wheel that holds fifty or more, and are taken from this as often as needed.

Mr. Barnes has been employed heretofore in the United States armory at Springfield, (Mass.,) where numerous experiments in breech-loading cannon

were made by himself and others, and is thoroughly posted in these matters. He says that two men, one to drop in the cartridges and one to turn the crank, can manage the largest sized guns that now require from eight to twelve men to work, and that he can discharge any cannon as fast as the powder in its cartridge will burn. He has made five successive shots in twelve seconds. P.

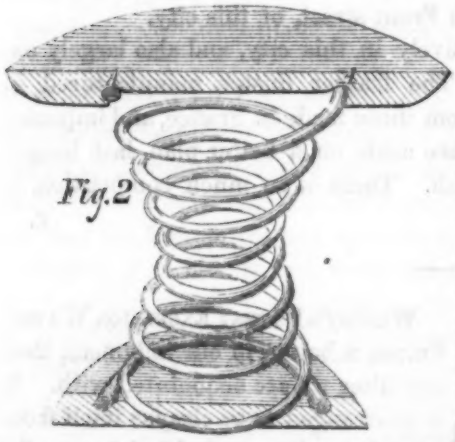


Fig.2

WRIGHT'S PATENT SPRING BEDS.—In contriving and offering these beds to the public, Mr. Wright has done the world a good service. We have alluded to this invention in a previous volume, but we now speak from experience in our own family. They are cheap, durable, and convenient, being easily removed from one bedstead to another, or even used equally well upon the floor. They can be made more or less pliable, to suit the taste or the weight of those who use them; and whoever wants a more comfortable arrangement than is furnished by a good mattress resting upon these springs, is not only hard to please, but we fear will be old and rheumatic before his want is supplied. Fitted for a double bed, the cost is some eight or ten dollars. They are just what is wanted in hotels when they cover the floors of parlors with beds, as on public days.

A POLYCHROMATIC PRINTING PRESS, for simultaneous printing with several different colored inks, is exhibited by Messrs. A. M. & G. H. Babcock, of Westerly, R. I. It consists of a central revolving block having four level surfaces or beds, each of which receives a sheet of paper for printing. The types are affixed to a platten, and there are as many plattens as beds. As the sheets come in front of the plattens, the latter advance and leave an impression of their types upon the paper. Each platten is inked by a different set of rollers, and thus different colors may be stamped upon each sheet of paper. They may be made to print as many colors as are desired. Price $800 and upwards, according to size.

SAXTON'S SUMMATOR is a marvelously ingenious labor-saving machine for adding numbers. Any series of numbers within its limits being brought successively to a given place, an index points out the sum. This may go on through a whole column of figures. It is quite worthy of notice from all who have work of this sort. An expert will get his result with this machine in much less time than the most rapid accountant could find it.

WESCOTT'S RAILWAY DOOR-SPRING.—This has considerable merit. Its chief points are that it operates with most power at the point where the power is wanted, is without noise, does not *slam* the door, is simple, and not easily got out of order. It may be placed out of sight.

WATER HEATER FOR LOCOMOTIVES.—Magoon & Co., of St. Johnsbury, Vt., exhibit one of their patent smoke stacks for locomotives. By this invention the heat of the exhaust steam and the escape caloric is made to heat the water in the tender, and an important economy in fuel is thus obtained.

HOLMES' PATENT THRESHING MACHINE is exhibited by Bonnell & Co., 211 Center street, New-York. It is of small size, and may be used by hand or power, as desired. It consists of a few wooden bars pivoted at one end, and lifted by cams arranged on a rotating shaft. They fall upon a platform on which the grain is placed. The straw is carried along under the bars by an endless apron. It is claimed that two men, with one machine, will do the work of six men with common flails.

H. B. SMITH'S MORTICING MACHINES.—Mr. Smith is a true son of "the city of spindles," *a city* equally skilled in other branches of mechanics as in the machinery used in his factories. He has several valuable inventions on exhibition. We can only refer to them in a general way.

His MORTICING MACHINE is designed for door manufacturers, but is suited to any light work, either of hard or soft woods. It is built entirely of iron and steel, and does its work with great neatness and wonderful dispatch.

His MACHINE FOR MORTICING BLINDS, is another capital invention, which secured a gold medal, at Boston, in one of the best shows we have ever seen. It will make forty or fifty mortices per minute, and can be operated by a boy. It must come into universal use. We hope to exhibit engravings of these machines, hereafter.

DEMOREST'S MAGIC MINIATURE COOK-STOVE.—This is a capital concern. It occupies about the space of a quart mug, and will boil water, cook eggs, ham, etc., stew oysters, heat flat-irons, and perform similar operations, with perfect ease and almost without cost, as it consumes the gas of only a single burner. It may be attached to a common burner by an elastic tube as it stands on a table, or it may be set directly upon the burner. Cost, with utensils, $1 50.

NEWBURY'S BREECH-LOADING GUN, is a very effective arrangement. The caps are inclosed; the revolving barrel can be exchanged very quickly; and the priming apparatus is ingenious.

HICKOK'S PATENT PORTABLE KEYSTONE CIDER AND WINE MILL, advertised in this journal, was patented in Nov., 1855, is a very compact form, easily transported from place to place, is ingeniously contrived and well made, and can scarcely fail to be especially convenient for the purposes to which it is designed. It will make from six to twelve barrels a day. The patentee has obtained a large number of very strong certificates in commendation of it. Price $40. Give him a call, at Harrisburgh, Pa., or at agricultural stores.

FORD'S AMERICAN WINDOW is a very useful and convenient arrangement, by which the upper and lower sashes are moved up and down and the lower ones open also from the center. They do not rattle, and are as cheap as the form ordinarily used in good houses. They will not easily get out of order.

GUNNER'S SWING BOLT, for shutters and blinds, fastens shutters and blinds, inside or outside, at any desired position, requiring no other fastenings.

Woodruff's Self-Acting Gate is the best arrangement we have seen for ordinary farm purposes, always saving the trouble of opening and shutting. This is done by the wheels as they approach the gate or pass through it.

Westcott's Railway Door-Spring is very well adapted to the object for which it is designed, and is free from many of the objections which may be urged against some other contrivances for a similar purpose.

Littlefield's Railway Coal Burner.—In this stove Mr. Littlefield has undoubtedly combined one or two points that are new, so far as we know, and of no little value. It secures the combustion of the coal on the outside, while the central parts burn very slowly. A good draught, easily controlled, is also secured, and also a large radiating surface. We have never seen arrangements so successful as these appear to be in accomplishing the results. The stoves are manufactured and sold by Erastus Corning & Co., Albany.

Dick's Patent Anti-Friction Machines—*For Shearing, Punching, and Swaging Iron of any Thickness.*—This is a very powerful machine, which does an immense deal of hard work, cutting the thickest plate even, without any noise. It seems difficult to contrive any thing more effective for the purposes in view.

Kuhn's Grand Patent Harp Dulciana.—This is an ingenious attachment of the harp to the pianoforte, or in other words it is a harp, the strings of which are struck by the hammers of a pianoforte. The harp rises from the back side of the instrument, a large portion of the strings being above the case which contains the action. The music is very sweet, but is deficient in power. This would be expected by any one who calls to mind the force with which the strings of a harp are struck by a good player. The name is characteristic of its merits. This combination answers well to the Dulciana of an organ, but lacks the fulness of the diapasons, and the brilliancy of many other stops. It was manufactured in Baltimore.

The Nellisonian, is another new and very curious instrument. This is a pianoforte with a bank of keys on the opposite sides, the strings of which are stretched up and down a hollow cylinder which stands within and above the center of the case or square box, in which the action is placed. This cylinder is divided by a sounding-board which runs through its entire length, dividing it into two chambers. This is an original idea. The plan has its advantages, and may prove of great value. But the exact proportions best adapted to such an instrument, have not yet been ascertained. The tone, so far as we can judge in so large a room, lacks power and volume. This invention was patented in 1852, and was exhibited at the fair of the Institute in that year. This is the second instrument ever built of this description. It may be supposed therefore to be capable of important improvements in its mechanism and proportions, and should have a careful and candid examination and receive all the consideration which is due to anything that promises progress in this, the most popular of the fine arts.

The Descent from the Cross, by Carew of London, is a very large and splendid piece of art, in basso-relievo. It was designed for a Cathedral in Dublin, but the contract was never executed, on account of the death of the bishop, and it was sent to the exhibition in the Crystal Palace in 1853. On its arrival, it

was found to be so shattered upon the voyage that the directors refused to receive it. Recently it has been restored in a very perfect manner by Mr. Charles Innis, of this city, who was a pupil of Mr. Carew at the time it was first constructed in London. Mr. Innis deserves great credit for the skill he has here exhibited. It should win for him both fame and money.

The body of the Savior is represented as supported by Nicodemus. Joseph of Arimathea is at his feet. The head of John the Evangelist is reclining against the cross. The three Marys and several persons sent by Pontius Pilate to oversee the work, complete the group. It is perfectly successful as a work of art, in its drapery, postures, etc. No copy of it has ever been taken.

THE BAPTISM OF THE SAVIOR is by the same talented artist. It is of life size, and is well worth a careful study.

THERE are many other inventions in this show, worthy of especial notice, for the description of which we cannot now afford room. We shall refer to some of them in our next number. Among these are an atmospheric hammer, a capital affair; gas stoves, and other new stoves; shears for cutting sheet and plate iron; carpenters' tools; machines for making barrels; a stone-dressing machine; a racket handle, for tools, by which one can bore in corners and with great rapidity; marble-sawing machinery; machine for picking and opening cotton and other fibrous materials; a folding machine, etc., etc. Indeed, there is collected in this exhibition, very little useless, but a vast amount of excellent machinery and tools. We never saw a better show. P.

FOR THE PLOUGH, THE LOOM, AND THE ANVIL.

TO FIND THE SIDE OF AN OCTAGON.

Rule.—Multiply the *least* diameter by 12 1-50

MERCHANT KELLY.

BENTONVILLE, Ind. 29

HOW TO CALCULATE THE POWER OF A LOCOMOTIVE.

THE *Railroad Advocate* gives instruction on this point as follows:

Suppose thirty cars weighing 30,000 lbs. each, (loaded,) to be drawn at the rate of ten miles an hour, up a grade of 40 feet.

On a level, at ten miles an hour, the entire resistance to the motion of trains is safely estimated at about ten pounds per ton, although under the best circumstances it may not exceed eight pounds. Here are 450 tons of loaded cars, whose friction resistance is thus 4500 lbs.

The resistance of gravity in going up the grade, is found by the following rule:

Multiply the number of feet rise of grade per mile, by .3787. Point off four figures for decimals, and the product is the gravity in pounds of one ton of 2000 pounds on that grade.

The rise of our supposed grade being forty feet per mile, 40 multiplied by .3787 is 15.148, or little over 15 pounds gravity per ton. Hence 450 tons, at 15 pounds per ton, is 6750 lbs. of gravity; a total of 11,250 pounds of friction and gravity of the loaded cars alone. Now what will be friction gravity of the engine and tender?

But we cannot know the resistance of the engine and tender without knowing the size, and their size is the very thing we are after. We can guess nearly enough, for entire accuracy is not required. We can say safely that the engine and tender which will carry thirty loaded eight-wheeled cars, ten miles an hour,

up a forty feet grade, will weigh not less than forty tons. Here, then, is an additional gravity resistance of (40 tons by 15 lbs.) 600 pounds; and a friction of probably 1000 pounds for the engine and tender. To insure sufficient power, it is probably safe to provide an engine with 13,000 pounds of tractive power. How large, then, must be the engine which will give this power?

This power depends upon four elements, viz.:

1st. Diameter of cylinder.

2d. Length of stroke.

3d. Size of wheel.

4th. Pressure of steam.

To find either one of the above elements, the other three must be assumed. Suppose, then, an average of 80 pounds per square inch on the piston, and 22 inch stroke, and 4½ feet wheel. Now all we want is the diameter of the cylinder.

Let us take the rule for finding the tractive power—the rule by which we should have to find the power of the engine, whose power we now know to be 13,000 lbs. The rule is this:

Multiply the diameter of the cylinder, in inches, by itself; multiply this by the pressure of steam, in pounds, per square inch; multiply this product by the length of stroke, in inches, and *divide* this entire product by the diameter of the wheel, in inches. This quotient is the tractive power of the engine, in pounds.

Hence, to find the size of the engine from its power, we have only to use this rule backwards. Suppose, then, we had just found the power of an engine to be 13,000 lbs. of traction; we should have got that number by dividing some other number by the diameter of the wheel (54 inches). That number must have, therefore, been 13,000 times 54, or 702,000. This number must have been obtained by multiplying some other number by the length of stroke (22 inches). Hence, this number was 702,000 divided by 22, or 31,909. This number, too, was found by multiplying still some other number by the pressure per square inch, (80 lbs.) Hence, that number must have been (31,909 divided by 80) 400, nearly.

Now, this last number was the square of the diameter of the cylinder, or the number obtained by multiplying the diameter of the cylinder, in inches, by itself. By extracting the square root, or by referring to a table of squares and cubes in any mechanic's hand-book, or even by a brief trial, we find the required diameter of cylinder to be 20 inches.

Briefly, then, having found the tractive power required to pull any given train (by simply calculating its resistance with the approximate resistance of the engine and tender), find the size of the engine by the following

RULE.—Multiply the tractive power required by the diameter of the wheel, in inches. Divide the product by the length of stroke, in inches; divide, also, this quotient by the pressure of steam per square inch. The last quotient will be the product of the diameter of the cylinder into itself. The diameter must be found by extracting the square root, or by reference to a table of squares and cubes, or even by trial.

PINCHING TO PROMOTE FRUITFULNESS.—Those who have never practiced this, or observed its results, may have seen, if experienced in tree growing, that a shoot of which the point was broken, bruised, or otherwise injured, during the growing season, frequently becomes a fruit branch, either during the same or the following season; and this, especially if situated in the interior of the tree, or on the older and lower parts of the branches. The check given to the extension of the shoot concentrates the sap in the part remaining; and, unless the check has been given very early in the season, or the growth very vigorous in the tree, so that the buds will break and form shoots, they are certain to prepare for the production of fruit. It is on this principle of checking the growth, and concentrating the sap in the pinched shoot, that pinching to induce fruitfulness is performed; and its efficiency may be estimated from the fact that trees on which it has been practiced have borne fruit four or five and perhaps seven years sooner than they would have done without it.—*Barry.*

Senior Editor's Table.

Owing to a mistake between us and the printer, without blame on either part, our correspondence from the West has got into the body of this number, in Long Primer, instead of being pushed into fine print, near the end, where only, if anywhere, it deserves a place. It there occupies more space than it is worth; and yet does not contain half we wished to say. In this less pretending corner, we want to say a few of the things there left unsaid.

This is a great country. Now don't laugh at us, as if we had never been much from home before. It is true we have not. We had a tender mother; we have always had kind friends; and we never have roamed far from the smoke of the home chimney. This crossing the western line of New-York, was a new thing to us; and if one inured to the rocky hills of New-England would not stare at the first sight, he must be a stupid fellow. In England, Scotland, Belgium, France, and some other countries, we have seen husbandry that we thought was well worth seeing—broad fields beautifully tilled—enviable crops. But if the rolling prairies of Illinois and Wisconsin should a few years hence be cultivated as we think they will be; if they should be studded here and there with plantations of trees, as they can be almost without trouble, so prolific is the soil; if the farm buildings, the gardens, the orchards, should indicate such comforts as the wealth of the soil will certainly warrant—the proudest cultivation of the Old World will be eclipsed: Illinois itself is two thirds as large as the united kingdom of Great Britain and Ireland, the one containing fifty million acres, the other seventy-five million. Its agricultural capabilities are at least as great, probably much greater. Of its mineral resources we cannot speak comparatively, but they are great. It amazes us to think what this State will become in a century, if only half its present rate of progress should be continued, and we know not why it may not continue to advance as fast as now.

Something practical.—J. C. Capron, a successful stock breeder of Alden, McHenry Co., Ill., told us on the show-grounds, at Milwaukee, that clover seed is the only manure he can afford to buy. He thinks it enough, together with the ordinary manures of the farm, wherever land is plenty and is judiciously cultivated. We drew him out, on the comparative value of clover and herdsgrass. He sows herdsgrass for the improvement of the quality of the hay crop—sows it with the clover—but believes it is the clover, by means of its deep tap-root, drawing up the salts from below, that benefits the soil for succeeding crops. He has spent much of his life South; and if we understand and remember him correctly, his opinion is, after great experience in various latitudes and soils, that clover is good, everywhere, if the soil will produce it, and for all crops, as cotton, tobacco, wheat, and all cereals. Not five minutes after, we met a first-rate farmer from the State of New-York, who gave us an opinion directly the reverse, that herdsgrass not only gives better hay, but prepares the land better for succeeding crops. Why will these farmers—good farmers too, intelligent, successful—differ so? It sometimes seems as if there was nothing to be learned from them. Is it owing to inaccurate observations? or is it due to difference of soils? It may be ascribed in part to both causes. But we believe in clover. On a good clover lay—where clover and herdsgrass have been sown together, and the ground has become thoroughly permeated with the clover roots—you are pretty sure of a good crop, other requisites being had. Mr. Capron exhibited (we are not certain how many, but we believe) thirty pure North Devons. One would need to go far to see a finer stock.

There were four pair working oxen, brought there, as we understood, to show that the Devons are not a small breed, and they certainly went far to show it, though more remarkable for perfection of form than for size. They were exquisitely beautiful, as were also four cows of his herd and many young animals, the cows bearing the names respectively of Margaret, Adaline, Jane, and Strawberry. Mr. Capron is an old breeder, has bred other races, but thinks the Devons, if not the best for all parts of the country, best for all northern latitudes and many Southern. We have little doubt he is right, though we have supposed that for mild latitudes and rich pastures, the larger Herefords and Durhams were preferable. It is certainly an advantage of the Devons, that their blood is intensely strong, holding fast their peculiar characteristics of form, color, and hardihood. Mr. Capron's views corresponded with those we have often expressed, that whatever be the object in keeping cattle, *they should be kept well.* We would say, keep no more than you can keep in the best manner; have warm sheds and plenty dry bedding in winter, and plenty of food always; they should be always growing; there is no profit in feeding animals so that they will barely hold their own. We would say to our readers now just before cold weather comes, calculate for a pretty severe winter; not that we expect such, but we may have it, and it is safe to be prepared for it. Prepare comfortable quarters for your cattle, and see that you do not commence the winter with too many. There is more profit in wintering fifteen well, than twenty badly. Starving cattle, or leaving them to suffer with the cold, is an unprofitable, as well as a cruel business.

Another Herd.—H. N. Washbon, Esq., of Morris, Otsego Co., N. Y. also exhibited a herd of twenty-seven cattle about half pure Devons, and the rest grades, in which the Devon blood was so predominant that none but a good judge would have suspected a mixture. We do not recollect to have seen an Ayrshire or an Alderney at the Michigan or the Wisconsin shows; but the Durhams and the Devons at both fairs were numerous, and many of them of a high order. Fast horses and trials of speed—not races—occupied too exclusively the attention of both gatherings. The subject, we admit, is important, worthy of the consideration of an intelligent people, but we do not want it, like Aaron's rod, to eat up all the other rods, and we very much fear that a wrong direction is being given to our National, State, and County fairs, in this respect.

Promiscuous.—We were politely shown over the implement factory of Messrs. Warner & Wakeman, of Dexter, Mich. Among other labor-saving implements, they manufacture a threshing-machine, capable, as they say, of easily threshing and cleaning nine hundred bushels of wheat per day. It is a heavy, strongly-built, and we should think durable machine, is on wheels, and capable of traveling from farm to farm. H. Boutwell, Esq., of Racine, Wis., is the manufacturer of chain pumps, portable mills, and a broadcast grain-sower. The latter spreads the seed perfectly even, any desired quantity to the acre, covers it at the same operation, and is easy of draft for a span of horses. After seeing its operation, we should not hesitate to commend it to any who prefer broadcasting to drilling. It would hardly be possible to spread grain more evenly, or to cover it more equally, than is done by this machine. We noticed also at the Wisconsin fair another broadcast sower manufactured by Wm. Sampson, Chicago, and exhibited by C. C. Bellows, Mineral Point, Wis., which seemed to possess great merit. The manufacture of agricultural machinery has become an immense business at the West. If we do not misremember, John S. Wright, of Chicago, told us that he would manufacture five thousand of Atkin's Automaton Reapers at his shop in that city, and three thousand at another establishment at Dayton, O., within the coming year, and that indications were favorable for selling them as fast as he could make them. Other instances of Western energy and enter-

prise we would mention, but must stop for want of space. American skill in mechanics and manufacturing cannot fail to be a matter of rejoicing to the American agriculturist, if he rightly estimates its bearing on the national prosperity, and especially on his own employment. The agriculturist must have a host of mechanics and manufacturers for his customers—consumers of his produce—or he cannot prosper.

Recent English Patents.

SELECTED AND PREPARED BY M. P. P.

IMPROVEMENTS IN MANUFACTURING ARTIFICIAL STONE, AND IN GIVING COLOR TO THE SAME. BY WM. HUTCHISON, of Tonbridge Wells.

This invention relates to a peculiar preparation of sand, loam, chalk, gravel, shingle, plaster, cements, lime, or other similar loose and friable substances, combined with coal-tar, common resin, or other suitable resinous or similar bituminous material, whereby a new compound is produced, which may be molded into blocks of any desired shape, and colored according to taste. These blocks, when completed and hardened, are perfectly impervious to wet and vermin, and durable in the highest degree. To manufacture an artificial stone of a dark color, coal-tar is used, but if a light artificial stone is required, common amber resin is employed.

The tar is freed, in the first place, from all aqueous and some of its oleaginous constituents by boiling it, and distilling and condensing the same through pipes, until it becomes so consistent as not to give off any oily or fatty substance to the touch. If properly prepared, it will set perfectly hard when cool, and will not yield to pressure. Previous to submitting the materials to pressure, they are dried on metal plates, heated by hot air or water, or by placing them on any surface of brick or stone heated by furnaces or otherwise. The proportions used are about one gallon of sand or other friable substance to one quart of coal-tar prepared as before described; or one gallon of sand or other friable substance to about one pint and a quarter of resin in a boiling state. These materials are mixed, in a heated state, until they become thoroughly incorporated; the mass is then compressed in a warm metal mold, of any desired form. The molds employed should be made in two or more pieces, so as to be capable of being thoroughly secured together, and yet readily disengaged when desired. When composed of metal, the molds should be perfectly smooth inside, and the pressure applied gradually. Every thing used with the aforesaid process should be kept warm, but the materials, when compressed, should be relieved from the molds as soon as moderately cooled.

In order to obtain colored artificial stone, the resinous or bituminous substance may be colored while in a boiling state, or the sand or other material may be colored previous to its incorporation with the aforesaid ingredients.

According to one mode of operating, the tar or resin, after having been treated as before described, in place of being reduced to a liquid state by boiling, may be reduced to a fine powder and mixed with the sand or other material, also reduced to a powder, over a hot plate; and when sufficiently heated, so as to become incorporated together, the mass may be compressed into molds.

The artificial stone, prepared by any of the methods hereinbefore described, may be again crushed into a fine powder, and mixed with about twenty-eight per cent., more or less, of lime or other plastic material, and used, when cold, as a cement for internal or external application.

Improvements in the Application of Silicate of Potash to Hardening and Preserving Stones and Calcareous Materials. By Wm. Armand Gilbee, of Finsbury.

This invention consists, firstly, in the process of impregnating stone and other calcareous materials with a solution of silicate of potash. Secondly, in determining the different degrees of strength to be given to the solution of silicate of potash, which varies according to the nature and state of the stone, and the conditions of the atmosphere. Thirdly, in the means of drying the stone either before or after the saturation, to insure a favorable result.

When treating calcareous materials by the above-mentioned operations, a certain quantity of carbonate of lime is converted into silicate of lime. The silicatization also of siliceous materials, such as sandstone, is effected by the introduction of a solution of pure silicate of potash, which, in setting, causes the disintegrated particles of sand to adhere—thus hardening the stone to a considerable extent. Before proceeding to the silicatization of the materials, it is necessary, if they are new, to dust them, and if old and decayed, to clean them—carefully avoiding the use of acid. If the monuments or materials to be treated have been previously coated with a water-proof composition, it is requisite, after the removal of this coating, to wash them with an alkaline solution of from two degrees to seven degrees Beaumé, according to circumstances, and afterwards wash them with pure water.

The solution of silicate of potash is applied to the stone in the form of fine rain, by means of suitable pumps furnished with spreaders. In treating hard stones, this process is continued for three or four days successively, but for soft stones four or five days are necessary. The process is discontinued when small crystals of quartz appear on the surface of the stone, this state being a proof of sufficient impregnation. The quantity of the solution of silicate of potash may vary from two pounds to fifteen pounds per superficial yard, according to the nature and decay of the stone or calcareous material.

On account of the variety in the quality of building stones, the inventor divides them into three classes, so as to indicate as clearly as possible the degree of concentration of the solution requisite in each case. First, hard stones (sandstone, rock lias;) second, soft stones (large grains and open pores;) third, soft stone with close grains, such as calcareous stone, obtained from the bed of the Loire.

The stones of the first class are treated with a silicate solution of the strength of seven degrees to nine degrees Beaumé. A solution of five to seven degrees Beaumé is applied to those of the second class—gradually diluting it, so as to finish with a solution equal to from ten degrees to twelve degrees Beaumé. The materials of the third class are treated with a solution from six degrees to seven degrees Beaumé, which is gradually lessened, so that in completing the operation the strength of the solution is not more than three to four degrees Beaumé. In all cases the complete stoppage of the pores of the stone is avoided.

The treatment described for materials of the first class is also applicable to new or decayed statuary marble; that for stones of the second class for all kinds of sandstone. When they are much decayed, a more concentrated solution ofthe silicate of potash is used.

In cases where, by reason of the condition of the atmosphere or the position the stone occupies, it fails to attain a sufficient degree of silicitization, the stone is dried by means of ventilators (that of Combe's being preferred,) employing heated air, according to circumstances. To dry stones by heated air previous to silicitization, a temperature of 104° Fahr. is first used, and gradually raised during the necessary time to 318° Fahr., and even higher, according to circumstances. This temperature is gradually reduced to the original degree of heat. The same operation is performed after silicitization.

The inventor also employs heated air for joining stones, for which purpose good hydraulic cement is used, mixed with silicate of potash from eight to ten degrees Beaumé. Detached portions of stone are replaced by a paste or cement

formed of the same kind of stone, broken and sifted, and mixed with a silicate solution of twenty-five to thirty degrees Beaumé, afterwards properly compressed so as to assume the exact color, grain, and density of the natural stone. The same process of joining and restoration can be applied to sandstone and statuary marble.

When joints made by the ordinary process of lime cement give way, they may be strengthened by impregnating them with successive coatings of silicate of potash of ten to twelve degrees Beaumé. This impregnation is effected by means of pressure continued during a day or more. The result may be improved by applying, after the last application of silicate of potash, acetic or pyroligneous acid of 2° B., succeeded immediately by showers of clean water.

IMPROVEMENTS IN DRAWING WOOL AND OTHER FIBROUS SUBSTANCES OFF THE COMBS OF COMBING MACHINES. By WM. DENTON, of Addingham, Yorkshire.

Heretofore in drawing wool and other fibrous substances from the combs of combing machines, it has been for the most part usual to employ rollers set at an angle to such combs in such a manner that the rollers seize, first the longest wool which projects furthest from the comb, and afterwards take the shorter wool which projects a less distance from the comb; thus is the long wool taken hold of at a distance from the comb, and it is liable to be broken in the drawing off. This invention consists in placing the drawing rollers parallel, or nearly parallel, to the comb, and in tapering the ends of the rollers in such a manner, that the wool enters between them at their tapered ends, and the longer and shorter wool are both taken hold of alike close up to the comb, and all drawn off together.

IMPROVEMENTS IN MACHINERY OR APPARATUS FOR COMBING WOOL, COTTON, AND OTHER FIBROUS SUBSTANCES. By WILLIAM HENRY BULMER, of Queen's Head, near Halifax, and WILLIAM BAILEY, of Halifax.

This invention of improvements in machines for combing wool and other fibres, relates to that class of machines where the fibre to be combed is fed, by suitable feed-rollers, through gill-combs, to nipping instruments; by which it is conducted into position to be taken by a carrier or porter comb, by which it is laid on to the circle or other passing comb, thence to be drawn off.

And the improvements consist in so arranging the parts actuating the nipping instruments and the porter or carrier comb, that the improvements of the nipping instruments may be increased in speed from the point of receiving fibre from the gill-combs to the point of delivering the fibre to the porter comb, and again diminished back to receive a fresh supply; whilst the movements of the porter or carrier comb are diminished in speed from the point where it receives fibre from the nipping instruments to where it lays that fibre on to the circle or other passing comb, and then increased back to the point for receiving a fresh supply; by which, in working such machinery, considerable advantage is obtained, by increasing the speed of the parts when they are required to exert least power. These variations of speed are effected by connecting the movements of the parts with a shaft, to which an irregular motion is given by its having affixed thereon eccentrically an elliptical toothed wheel, which is taken into and driven by another similar wheel, also placed eccentrically and upon another shaft, which receives its motion from the main axle, or in any suitable manner.

And the improvements also consist in obtaining progressively increasing speed to the gill-comb bars in their traverse from the point of receiving fibre to the point of delivery to the nipping instruments, by a varying speed given to the gill-screws—they being driven from the axle, to which a varying velocity is given, as above explained.

Miscellaneous.

INAUGURATION OF THE STATUE OF BENJAMIN FRANKLIN.

Our Boston friends have a way of their own, of "doing up" their public celebrations, which other cities have not yet learned to imitate. This fact was emphatically illustrated at their recent inauguration of the statue of Franklin. We find the following account of it, by "Cultivator Mary," in the *Ohio Cultivator*, beautifully written, we are quite certain by a true lady, of refined taste, and well able to communicate her own ideas of things. But let her speak for herself:

"Wednesday, Sept. 17th, was a day that will ever be memorable in the history of Boston, as the inauguration of the statue of Benjamin Franklin. The weather was all that could be desired, and the bright morning was ushered in by the loud booming of cannons and the chiming of bells. The streets were bountifully and beautifully decorated, and the mottoes of Franklin everywhere beheld. The Armory of the Independent Cadets was draped in flags and national ensigns. The Tremont House was elegantly festooned across the entire front. The Museum was dressed in splendid regalia, consisting of the flags of all nations displayed in six rows, reaching to the opposite side of the street. The motto, extending along the whole front, read, 'He snatched alike the lightning from the heavens and the sceptre from the hands of tyrants.' A building at the corner of Court street and Franklin avenue was elaborately festooned, and the motto read, 'Benj. Franklin, when he was twelve years old, was apprenticed as a printer to his brother James, whose office was on this spot.' The locality was of course one of great interest. The corner of Hanover-st., where Franklin worked as a tallow-chandler, was beautifully decorated. On Haymarket Square, at the Maine R. R. Depot, were suspended two magnificent American flags, so arranged that the stars blended in a double and beautiful constellation. The Corn Exchange, on Commercial-st., was appropriately decorated, the windows being filled with flour barrels, corn and rye sheaves. The gilded eagle on the front, bore proudly the stars and stripes, with the motto, 'It is hard for an empty sack to stand upright.' A splendid display of national flags was exhibited around the old State House, and on the front balcony was the record, 'First settlement of Boston, Sept. 17, 1630.' Opposite the old South Church rises the Granite Block, on the site of the birth-place of Franklin. It was arrayed in gorgeous style. A grand triumphal arch projected from the front, its fluted columns hung with bunting. Surmounting the arch was the motto, 'He took the lightning from the heavens.' A painting of the house in which he was born, was shown in the arch, with the inscription, 'Benj. Franklin born on this spot, Sunday, the 17th of January, 1706.' For some distance from this spot was a uniform display of magnificent arches and double festoons, reaching from side to side, so that the whole area resembled a fairy grotto. From the Catholic Cathedral waved a row of flags with the words, 'Franklin, we all unite to honor him.' At the junction of Franklin and Washington streets was displayed the motto, 'Washington and Franklin—as the streets which bear their immortal names are here inseparably connected, so are their memories joined in the universal affection and homage of mankind.' The residence of Hon. Moses Kimball, Wash. st., was tastefully trimmed, and bore the inscription, 'Honor to Franklin—the Man—the Mason—the Statesman—the Philosopher!" Also the dwelling of Henry W. Dutton, Esq., was the center of much attraction. The balcony was beautifully festooned, bearing the words, 'By the Press we can speak to nations.' On one flag spanning the street we beheld Poor Richard's warning, 'Don't give too much for the whistle.' The decorations of Dover-st., were inspiringly beautiful. The splendid streamers, flags and festoons, arches and statuary, and long rows of windows filled by ladies, was animating in the extreme. Among the multitude of inscriptions and maxims, we saw, 'A ploughman on his legs is higher than a gentleman on his knees.' 'The genius which gave freedom to America, and scattered torrents of light upon Europe.'

"At ten o'clock commenced the forming of the procession, and Boston resounded with the strains of martial music and the din and clatter of the marshalling hosts. And an animated mass of humanity did the streets present, all interested and excited as the magnificent pageant moved along, representing a perfect panorama of all the trades and professions.

"First in order came a body of mounted police, military escort consisting of the light Artillery, National Lancers and Boston Light Dragoons. First brigade of Massachusetts Militia, first and second regiment of Infantry. Then came the fire department in neat uniforms of red, white and blue, with their gaily decked engines. Then followed the first Division, embracing the City Government, invited guests, and official personages—flanked by the Ancient and Honorable Artillery company in uniform with side-arms, under command of your venerable friend Col. Marshal P. Wilder. Then followed the Independent Company of Cadets, acting as escort to the Governor of Massachusetts. Clergymen, Senators, Judges, and other distinguished gentlemen, with Revolutionary veterans, and veterans of the war of 1812.

"The 2d Division composed of the mechanics and mechanical trades of Boston. The car representing a baking establishment was very amusing. It contained a machine for making crackers, back of which was an excellent painting of a brick oven. And there were the bakers in their white aprons, kneading the dough, as though all the honors of the day depended on their exertions. In this Division were two elegant pavilions of Chickering & Sons. The first containing the first grand piano made by the Messrs. Chickering in 1824. The second car, equally magnificent, contained the last grand piano made by that firm in 1856. The farriers were busily employed in shoeing a horse, in a car for that purpose. The pyramids of gold and silver ware glittering in the sunlight made a splendid show. The car of Nourse & Co., agricultural implement makers, was drawn by six noble yoke of oxen. In the car were all articles of farming utility, the most pleasing of which was a *churn* at which a sturdy young farmer was quietly at work, and the busy little wife in her white sunbonnet and clean blue apron, occasionally lifting the lid to see if the butter was about ready to *come*.

"The 3d Division comprised the mechanical profession, artists, manufacturers, &c. The Franklin Typographical Society and Printers' Union, added marked interest to this division. The press which Franklin himself worked was borne in a car, in which were printers setting type. A fac simile of the first paper ever issued by Franklin, was plentifully distributed among the crowd. The *Traveller* establishment was a prominent feature here, being a complete outfit of a printing-office.

"The 4th Division embraced the Masonic Fraternity of Mass., and encampments of Knight Templars.

"In the 5th Division were the representatives of the Bunker Hill Association, Board of Trade and Ag. Societies, and Pupils of the Public Schools, wearing Franklin medals. The Franklin Lodge of Odd-Fellows, bearing gay banners, brought up the rear of this division.

"The 6th Division embraced several literary societies, with the students of Harvard College, Mercantile Library and Young Men's Christian Associations. The 7th and 8th for charitable and Marine Societies.

"Each Division was headed by a band of music and military escort, bearing beautiful banners and emblems. Altogether the procession was at once novel and imposing, surpassing anything of the kind ever before witnessed here. At two o'clock commenced the exercises of Inauguration. The devotional service was performed by Rev. Dr. Blagden, and the oration by Hon. Robert C. Winthrop. Thousands assembled in the evening around the City Hall to witness the Illumination, which consisted of 8,000 gas-burners, arranged in arches and inscriptions. And so closed the memorable 17th, with honors becoming the high character of Boston, and a splendid tribute to the memory of Genius."

The New-York and Erie Railroad.—We have often commended the management of this road. Its chief, Mr. McCallum, in our judgment, has no superior. He has a due regard to economy, while his chief aim is to unite with this the safety of his freight and passengers. In this he ought to receive the hearty coöperation of the public. This management has recently been the occasion of a general strike, and an excited resistance on the part of the engineers. We have no doubt that these engineers think themselves aggrieved, and that they have some sort of ground for their opposition. But this ground was improperly granted to them by too loose a construction of their duties at the opening of railways in this country. Taking past practice as the guide, they are right. They have not been held responsible for going over a misplaced switch, when their speed was ever so slow, and it is their chief com-

plaint that these engineers are now held to this responsibility, at places where they are required to stop. But the past practice was wrong, and should be changed on all roads. Reason says so. The history of railroad accidents says so. Will not the public say so? When going at a moderate rate, they *can* see obstacles ahead, whether it be a turned switch or something else, and having in our control this means of security in addition to a careful switch tender, who does and will sometimes mistake, causing much loss of property and life, can we, the public, safely dispense with it? The past says No. We believe both the public and the general practice through the country will respond in the same emphatic No.

Of any other cause of complaint than that above referred to, we have no knowledge, and therefore express no opinion. This one is made the occasion of the strike, and is no doubt the moving cause of the difficulties which have proven so injurious to the interests of all parties. P.

India Rubber in a New Shape.—*The New-England Farmer*, always conservative and always progressive—by which we mean "going ahead" safely—comes to us for July, uncommonly rich in matters of importance to the farmer and of general interest. The following, originating with the *Boston Journal*, we cut from its pages:

Among the recent applications of India Rubber, none are so remarkable as the manufacture of what is called "Hard India Goods," into which the rubber enters most largely. We have in this city a company called the Beacon Dam Company, which is devoted to the manufacture of this class of goods. By a process that originated with Mr. Chaffee, coal tar is mixed with the rubber, and the compound makes one of the most solid, elastic and elegant articles that can be found in the market. It resembles polished stone, is as black as coal, needs no finish, and has of itself a hard and exquisite polish as it is possible for any metal to bear. There seems to be no end to the articles into which it can be made. Canes of the most elegant form and appearance are constructed out of it, and are as tough as so much steel, while they have all the elasticity of whalebone. Cabinet work, inlaid and mosaic, ornamental to the parlor and the chamber. Spectacle bows and glasses for the eye are made so light as to be no annoyance, while their elastic character causes them to sit firm to the head; opera glasses, castors, sand stands, ink stands, brushes for the hair, that cannot be harmed by hot water, tape lines, pen holders, pencil cases, cigar cases, government boxes for the army and navy, government buttons, and an endless variety of articles, are thus made, and the articles are of a most elegant character; syringes of a novel form and character; machines for oiling cars and engines, on a new principle, indicate that this new use of rubber is to work a complete revolution in the arts and manufactures.

But one of the greatest applications of this new rubber manufacture is the new telegraph wire that is made from it. It needs no poles, as it is laid in the ground. It needs no covering; a trench of a few inches is dug; the rubber telegraph wire is put in and covered up; the wire is enclosed with the rubber; no storm renders the wires inoperative; no insect severs; no rust corrodes. It would appear fabulous if I should state the miles of this wire that have already been engaged, and the goods cannot be made to meet the demand. The government of the United States is now the best customer of the Beacon Dam Company. The call for the navy and army button is immense; the article is elegant; the naval button has on it the motto, "Don't give up the ship." And so tough are these rubber buttons, that if one is placed on an oak plank and pressure applied, it can be sunk clear into the plank, and will come out unharmed: and the government shaving boxes, which are about three inches in diameter, are so strong that a man weighing 200 pounds can press his whole weight on one of them, and not break them. Gun handles, sword handles, and other military implements are constructed from this material. They are cheap, elegant, enduring. A walk through the sales-room of this company is one of the marvels of New-York, and if any of your readers have the least curiosity to see one of the most wonderful plications of India Rubber that the world has ever seen, they can be gratified by visiting the wholesale rooms of the Beacon Dam Company, located at No. 63 Maiden Lane, and they will be gratified. The Company retail no goods, but keep full specimens on hand, and the President of the Company, Col. I. H. Rich, so long known in

Burlington, Vt., as one of the most enterprising of the citizens of that beautiful city, will show the curious the marvels of this new trade.

Since reading the above, Col. Rich has politely shown us, as we are fond of peeping in where improvements in any of the industrial arts are exhibited, "the marvels of this new trade." At his suggestion, we also called on Mr. Beecher, 39 Maiden Lane, where a still larger assortment of these articles are shown. The useful and ornamental purposes, which the India Rubber, in the hands of the Beacon Dam Company, with Goodyear's patent, is made to answer, is truly astonishing. A pen-holder and pencil case, kindly presented us by Mr. Beecher, are A No. 1, in point of beauty and convenience; and we are quite sure they will last for a lifetime, and then be fit to go down to other generations. No one, who feels the least interest in the advance of the mechanic arts, would fail to be gratified with these exhibitions of the India Rubber ware.

Raise and Use more Fruit.—The *Life Illustrated* concludes an excellent article on the "Right Use of Fruits," as follows:

"Who but must feel, in view of what has been said, that we *use* too little fruit—that we *raise* too little fruit? Let every man who has an acre of ground plant *one tree more.* Those who are destitute of fruit may have a most excellent sort the first year by setting out the strawberry; and by watering freely after the commencement of blossoming the duration of the bearing season will be greatly prolonged. Meanwhile cultivate the raspberry, currant and grape, which, in from two to four years will yield a most luscious harvest. At the same time, too, let the cherry, peach, pear, and apple be growing, and the greatest variety may soon be made to crown the board, while not a year need pass without a share of these natural and health-giving luxuries."

Our Own Matters.—We are happy in being able to announce that the "Plough, Loom and Anvil," since under the combined direction of its present editors, is receiving such demonstrations of public favor, in the shape of new subscriptions, as will enable us at the end of the current volume, July, 1857, to reduce the terms to the uniform price of $2 00, with a liberal discount to clubs. This we *desired* to do at the beginning of this volume; we *will* do it at the commencement of the next—we will give not only as *good* a Journal of Agriculture and the Mechanic Arts as any other, but on as *favorable terms.*

In the meantime, we ask our readers to favor our objects, by making the work known to their friends, and securing their coöperation. Thousands of neighborhoods would be immeasurably benefitted, if such a Journal were placed in nearly every family. It now goes mostly to single subscribers, at $3 00 each, a large price, as it appears to many, but really the least it can be offered at, without a very large number of subscribers. Would not those who now pay us $3 00, from whom, by the way, no dissatisfaction is intimated, except that a few do not send on in advance according to our terms, prefer to pay $2 00, or even less in case of clubs, as they may do, by associating a few neighbors with them? We think they would, and they would promote our interests as well as their own by doing so.

Any subscriber now paying $3 00, may associate with himself two others, and send us $6 00 for the three; or if he is willing to act for us on a larger scale and will form a club of more than three, he may retain one-fourth of the money (at $2 00 each) as a compensation for his collecting and forwarding the money; or he may transmit the whole and receive back one-fourth in books, as we before proposed; or if he prefers to divide the benefit of his agency among his neighbors and friends, he will get his copy and enable them to get theirs for $1 50 each. Other subscribers may do the same; those in clubs now paying $2 00, may reduce this to $1 50, by enlarging the

the club, if they will work their own agency, that is, if some one of them will collect and forward the money, without charge to the rest. And new subscribers who desire this journal, and are willing to do a little work, may get it and help their neighbors to get it at $1 50 each, by clubbing, and by doing the work of collecting and forwarding themselves, instead of paying a commission.

If we are understood, it will be seen that all have their choice; to pay $3 00, as single subscribers, $2 50 in clubs of two, (see page 2, cover,) $2 00 in clubs of three, or $1 50 in clubs of more than three. Now, farmers and mechanics, if you take the first course—remain single subscribers—we get few subscriptions at a pretty good profit, and you pay for the work, not more than it is worth, for no candid man will say it is worth less than $3 00, but more than you need to pay. If you take the last course—send on in clubs of more than three—we get a great many subscribers at a very small profit, but enough, because a great many littles make a living; and in this case you get the work at just half the price in the other. Which is best? The latter is best for us, and we believe it is for you—for us, because it gives us enough additional subscribers to make up for the reduced price, and for you, because it gives you the work at half price, with a little pleasant labor, which some one of a club can do on an autumn evening or two, without feeling it, otherwise than as he will feel that he is doing a good thing for his neighbors.

There is another consideration;—if you form clubs on your own account, it enables us to dispense with agents; and agents are after all, only a class of *between-men*, whom neither you nor we like much, because they eat up the profit and prevent the worker, whether at growing wheat, manufacturing goods, or publishing useful journals, from getting for his *wares* anywhere near what the consumer pays. If we send an agent to you, he will tease you, perhaps beyond all endurance to pay three dollars for what we offer you for half the money. He has traveling expenses to meet. He must have a large commission or he cannot live by it. And who pays the commission? We nominally, but you really. All that is paid to the agents of a journal comes at last out of the subscribers, for they support the whole thing.

Now then, will you do your own agencies, no traveling expenses, no agent's salary, no hotel charges, no teasing you out of your good nature—all voluntary? If you will, we think *you* will be glad and we know *we* shall.

Book Notices, Etc.

GEOLOGY OF THE PACIFIC AND OTHER REGIONS VISITED BY THE U. S. EXPLORING EXPEDITION UNDER C. WILKES, U. S. A., IN THE YEARS 1838–1842. BY JAMES D. DANA, Geologist of the expedition.

This report consists of a quarto volume of text of 750 pages, illustated by several maps and numerous wood-cuts, and a folio atlas of 21 plates. It treats of the Structure, Growth, and Distribution of Coral Reefs and Islands; of the Geology of the Sandwich Islands; the Society Islands; the Fejees; the Navigators; of the Phenomena of Volcanic Action; Changes of level in the Pacific, and origin of the general features of the Globe; of the Geology of New-Zealand, Chili, Peru, and Fuegia, and of a part of Oregon and California.

The folio atlas contains figures of fossils of the Coal and inferior formations of New South Wales, and of the tertiary rocks of Oregon.

Only 200 copies of this Government Report have hitherto been printed. The author proposes to have 250 copies published for the benefit of those who are interested in the subjects. The copies will be furnished to subscribers for $12, the text bound

in cloth, the payment to be made on delivery. A copy was recently sold in New-York City for $40.

Should the subscription list reach 500, the edition would be increased accordingly, and the price reduced to $10. The work, if undertaken, will be ready for delivery in the course of the coming year.

Any person desiring one or more copies for himself or his friends, is requested to send his name and address by an early mail to the author, at New-Haven.

PRINCIPLES OF CHEMISTRY, embracing the most recent discoveries in the science, and the outlines of its application to agriculture and the arts. Illustrated by numerous experiments, newly adapted to the simplest apparatus. By JOHN A. PORTER, M. A., M. D., Prof. of Agricultural and Organic Chemistry in Yale College. New-York: A. S. Barnes & Co., 51 and 53 John-st. 1856. 477 pages.

A text-book much needed, by one as well qualified for the task as any other man living, well-planned, carefully prepared, and skillfully executed. Is not this enough? If so, take our word for it, and buy it forthwith. If not, we should like to see a better one. Our only objection to it is, that there is not enough of it. There is enough, however, for the uses for which it is designed. It is a capital work for pupils of all grades, at home and at school.

BIBLIOTHECA SACRA AND AMERICAN BIBLICAL REPOSITORY. E. A. PARK & S. H. TAYLOR, Editors. Andover, Mass.: Warren F. Draper.

The October number of this Quarterly, the very first of its class on the continent, is on our table. The learned editors are assisted by a corps of writers, who for ability and learning are not excelled in any similar publication. If it has not a very large circulation, (about which we are not informed,) it is by no means complimentary to the taste or attainments of the theologians of this country. We trust its list of subscribers is somewhat proportioned to its claims. Price $4 00; or $3 00 a year, *in advance.*—A new volume commences with the January number.

NEW MUSIC.—WM. HALL & SON among other fine pieces have published Il Trovatore, by R. Hoffman, very beautiful. Valse de Concert, and a Grand Military March, by Wollenhaupt, both superb, and Bring me my Harp, a song by Wallace. All these are of the highest order.

List of Patents.

FROM AUGUST 19TH, TO SEPTEMBER 23D.

Wm. G. Clough, Newark, N. J., evaporating salt.

Wm. C. Chambers and T. S. Hargraves, Brooklyn, N. Y., windmill.

J. H. Jones, Rockton, Ill., hand seed-planter.

John Leiblong, assignor to Ed. Brown and Jas. R. Case, Waterbury, Ct., preventing liquid from boiling over the sides of vessels.

Wm. Fosket and Benj. J. Stedman, assignors to Julius Pratt & Co., Meriden, Ct., sizing comb blanks.

A. F. Johnson, assignor to himself and F. A. Houghton, Boston, Mass., sewing machine.

Jos. Thomas, Brooklyn, N. Y., felting hat bodies.

Silas Woolson, Moodna, N. Y., potato digger.

Wm. H. Whitman, Bailey Hollow, milking cows.

Richard Ward, Edinburgh, Ind., grain cleaner and separator.

Caleb Winegar, Union Springs, N. Y., farm gate.

Dan'l. M. Baird, Warrensville, N. Y., assignor to Nathl. Potter, brace.

Elias Howe, Jr., Brooklyn, N. Y., bedstead.

John Liddle, New-York, air-heating furnace.

A. R. Marshall, Stratford, Ct., automatic attachment to gas-burners.

P. Miles, Hartford, Ct., curtain fixtures.

Cornelius Matsall, Albany, N. Y., hand corn-planters.

John T. Denniston, Lyons, N. Y., condenser for steam engine.

Henry L. de Zeng, Geneva, N. Y., self-adjusting fog bell.

Harvey D. Ganse, Freehold, N. Y., cultivator.

Wm. Goddard, New-York, seamless hosiery.

Charles P. Ariall, Roxbury, Ct., applying one stream of water to raise another.

Legrand Crofoot, Syracuse, N. Y., laying out rafters.

Charles B. Carpenter, St. Johnsbury, Vt., hay-rake.

Enoch A. Crandall, Friendship, N. Y., measuring distances.

Charles B. Carter, Ware, Mass., apple-parer.

Lucius Page, Cavendish, Vt., gauge for steam boilers.

Henry B. Ramsay, Indianapolis, Ind., brick machines.

Alva M. Stetson, San Francisco, Cal., amalgamator.

John Robertson, Brooklyn, N. Y., manufacture of lead pipe.

Jacob J. Smith and Jonathan H. Pugh, Philadelphia, bedsteads.

Nelson B. Slayton, Madison, Ind., fountain pen.

Simon F. Stanton, Manchester, N. H., machinery for filling seine needles.

Reuben Shaler, Madison, Ct., bilge and leakage water indicator, for vessels.

Marvin Smith, New-Haven, Ct., apple-parer.

Geo. and J. W. Gibbs, Canton, O., dynamometer.

Loyale Gillotson, Thompson, O., cupping.

Judson Knight, Newark, N. J., ball castor for trunks and furniture.

Peter C. Guion and Paul K. Wambaugh, assignors to P. K. Wambaugh, Cincinnati, O., lamp.

Edwin Allen, Glastenbury, Ct., improvement in calendar clocks.

Homer Adkins, Plymouth, Ill., improvement in harvesters.

David Babson, Croton, Ct., machine for feeding sheets of paper to printing-presses.

D. J. Bucher, Greenville, Miss., improvement in seed-planters.

P. D. Carmichael, Le Roy, N. Y., improvement in rotary steam engines.

Cummings Cherry, Pittsburgh, improvement in apparatus for purifying oil obtained from mineral coal.

Cummings Cherry, Pittsburgh, improvement in apparatus for distilling crude oil from mineral coal.

Cummings Cherry, Pittsburgh, improvement in the preparation of drying oil, from oils extracted from bituminous minerals.

Hezekiah Chase, Lynn, improved apparatus for arresting carbon in chimneys.

David N. B. Coffin, Jr., Newton, Mass., improved filter.

John F. Driggs, New-York, improved street sprinkler.

Chas. H. Gould, Concord, for bedsteads.

Josephus P. Harris, Bybelia, Miss., improvement in plows.

Andw. Hartupee and John Morrow, Pittsburgh, assignors to Joseph P. Haigh, Andw. Hartupee and John Morrow, same place, improvement in adjustable cut-offs for steam engines.

Jno. M. Hathaway, New-York, improvement in charges for shot-pouches.

Henry Hays, Quincy, Ill., improved method of boring and morticing hubs.

Hankles Heaberlin, Scipio, Ind., improvement in hay-rakes.

Benaiah C. Hoyt, Fort Washington, Wis., improvement in ploughs.

M. G. Hubbard, Penn Yan, improved raking attachment for reapers.

Warren Hunt, East Douglas, Mass., improved machine for testing axes.

Charles Ketchum, Penn Yan, improved fountain ruling pen.

Wm. H. Kimball and Andrew J. French, assignors to themselves and Amos K. Noyes, of Lynn, aforesaid, spring bedsteads.

Wm. A. Kirby, Buffalo, improvement in harvesting machines.

John H. Knapp, New-York, pen and pencil case.

Loomis Lamb, Berlin, Ct., improvement in churns.

Jas. Mackintire, Somerville, Mass., improvement in ale and beer coolers.

David Matthew, Philadelphia, improvement in condensers for steam engines.

Jos. McCracken, Brooklyn, improved process of stiffening hat-bodies.

John T. McCully, Gonzales, improvement in the manufacture of black bottle glass.

Edward Parker, Plymouth, Ct., improved buckle for wearing apparel.

John Robingson, New-Brighton, Pa., improvement in rotary steam engines.

John Robingson, New-Brighton, Pa., improved candle-moulding machine.

Joel Y. Schelly, Hereford, Pa., and Joseph Stauffer, Hosensack, Pa., assignors to Wm. Watson, St. Paul, Min., improvement in harvesting machines.

N. N. Selby, Fairview, Pa., improved whiffle-tree for detaching horses from carriages.

Wm. Shade, Gum Creek, Ga., improved buckle for wearing apparel.

Oren Stoddard, Busti, N. Y., improvement in grain and grass harvesters.

C. L. Falliant, New-York, invalid chairs.

Shelton W. Thompson, Glasgow, Ky., improvement in straw-cutters.

Abdelah Watson, Falmouth, Ky., self-waiting table.

Ferdinand Wietorich and Konard Haga, New-York, improvement in curtain fixtures.

C. Wheeler, Jr., Poplar Ridge, Ind., improved cutting device for harvesters.

Samuel H. Yocum, Shelbyville, Ind., improved method of boring hubs for boxes.

Isaac N. Forrester, Centreville, Pa., improved method of hanging and straining reciprocating saws.

Samuel Arnold, Green Hill, Tenn., fly-trap.

Hosea Ball, New-York, improvement in ovens.

Isaac Boss, Brooklyn, improvement in reefing topsails.

Malender Bates, Carlton, N. Y., improvement in corn-planters.

George Craine, Fairfield, Iowa, improvement in method of feeding and sawing shingles.

A. A. Crozier, Oswego, N. Y., improved stave-jointer.

Beneiah C. English, Hartford, improved mode of adjusting slats of window-blinds.

S. B. Fuller, Worthington, Mass., machine for painting carriage-wheels.

A. M. George, Nashua, improved explosive shell.

Alexander Gordon, Rochester, improvement in feed rolls of straw cutter.

George W. Griswold, Carbondale, improvement in metallic braces for heels of boots and shoes.

Henry Gross, Tiffin, Ohio, improved device in machines for manufacturing bed-pins.

Charles W. Hackett, Elmira, hand-straps.

James Jones Johnston, Alleghany, Pa., improvement in corn-shellers.

Wm. A. Gordon, Thibodeaux, La., improvement in brick machines.

David B. Kerr, New-York, improvement in manufacturing ingrain carpeting.

Daniel Lamson, East Weymouth, Mass., improved machines in notching hoops.

D. O. Macomber, New-York, improved omnibus.

Robert Moor, Westport, Ind., improvement in securing spokes to the hubs of wheels.

Thos. McDonough, Middletown, Ct., improvements in the air engine.

O. W. Minard, Waterbury, Ct., improvement in making brass kettles.

Albert S. Nippes, Lower Mertion, Pa., improved machine for grinding saws.

Stewart B. Palmer, Tully, improvement in blow-pipes.

Norman W. Pomeroy, Meriden, Ct., improved lubricator.

George M. Ramsay, New-York, improvement in cast iron pavements.

Isaac J. Robbins, Penis Manor, Pa., improvement in hay-rakes.

Ethan Rogers, Cleveland, Ohio, improved hydraulic brick-press.

Josiah A. Royce, Lee, Mass., self-regulating draught for chimney-tops.

Jos. Sawyer and Sylvester Sawyer, Fitchburg, Mass., improv ed hoop machine.

A. D. Shattuck, Grafton, Mass., improvement in carding-engines.

Sinclair Shannon, Buffalo, improvement in lanterns.

Thos. Slaight, New-York, improvement in lock for freight cars.

Hamilton Smith, Philadelphia, improvement in grain separators.

Isaac S. Spencer, Guilford, improved grain-threshing machine.

Frank Thorpe, Shelbyville, Ill., improvement in churns.

Wyllys Avery, Salisbury Center, N. Y., improved saw set.

Anson Atwood, Troy, improvement in dress of metallic hemispherical grinding mill.

Henry Adams, New-York, ladies' riding-saddle.

G. W. Bishop, Brooklyn, improvement in breech-loading ordnance.

John D. Brown, Cincinnati, apple-parer.

Israel F. Brown, Columbus, Ga., improvement in washing-machines.

Wm. A. Clark, St. Louis county, improvement in steam engines.

Wm. B. Carpenter, Brooklyn, extinguisher for fluid lamps.

Joseph D. Cawood, Marshall, Mich., improvement in repairing railway bars.

Robert Courtney, Albany, improvement in artificial fuel.

Calvin Dikes and Geo. S. Dikes, Allowaystown, N. J., improved method of feeding saw-mills.

Geo. W. Daugherty, Crozerville, Pa., and Thos. G. McLaughlin, Philadelphia, improvement in lubricating throttle spindles.

John Fordyce, Morganstown, improvement in seed-planters.

Geo. H. Gray, Clinton, Miss., improved mode of attaching horses to vehicles.

Albert W. Gray, Middletown, Ct., improvement in links of horse powers.

Samuel H. Gilman, New-Orleans, improvement in pans for evaporating sugar.

Charles R. Gardner, Detroit, improvement in sewing-machines.

Heman B. Hammon, Bristolville, O., improvement in hand corn-planters.

Geo. Juengst, New-York, improvement in reversing gear.

Danforth Johnson, Chicago, improvement in metallic car-spring.

John Kulinski, Charleston, improvement in collision apparatus for railroad cars.

James W. Lyon, Brooklyn, improved screw-cutter.

Wm. P. Maxon, Albion, Wis., improved grain and grass harvester.

Thomas Mitchell, Lansingburgh, improved machine for manufacturing the wooden part of brushes.

John Marland, West Bridgewater, Mass., improved process of manufacturing delaines.

Christopher N. Nixon, Barnsgate, England, improvement in hanging ships' rudders. Patented in England, May 12, 1854.

F. Noette, Brooklyn, improvement in cutting and drawing wire.

Jno. L. Newell, Binghamton, improvement in artificial tooth plates by the electrotype process.

Julius Riedel, Pleasant Hill., Ky., improvement in cartridges.

Henry D. Russell, Naugatuck, improved lock.

John R. St. John, Lockport, improved windmill.

Robert A. Smith, Brooklyn, for machine for sweeping streets.

Riley Smith, Towanda, Pa., improvement in washing-machines.

George Trott, R. H. Coles, and Wm. A. Clark, St. Louis, improved mode of suspending, by hydraulic pappet valves.

Jose Toll, Locust Grove, O., improvement in marble-sawing machines.

Ephraim Whitmon, Abington, Mass., improved windmill.

D. G. Wells, New-York, improvement in machinery for forming hat-bodies.

Robert F. Brower, Bloomfield, N. J., assignor to Sam'l A. and J. L. Brower, of same place, improved method of drawing from manufacturing inclosures, waste gases, steam, etc.

James C. Cook, Waterbury, Ct., assignor to the Hotchkiss & Merriman Manufacturing Co., of same place, improvement in jacquard looms.

L. A. Dole, Salem, O., assignor to Dole, Silver & Felch, of same place, improved saw-gummer.

Jos. Goodridge, Boston, assignor to the Boston Faucet Co., of same place, improved faucet.

Lewis A. Goodsell, Southington, Ct., assignor to himself and Daniel H. Holt, of same place, improved shingling bracket.

Wm. H. Seymour and Henry Pease, Brockport, N. Y., assignor to himself and Dayton S. Morgan, of same place, improvement in harvesters.

John Faggart, Roxbury, assignor to himself and Vernon Brown, Boston, Mass., improvement in furnace smoothing-irons.

Salmon Bidewell, Rochester, improvement in lamps for burning fluids.

Cyrus W. Saladee, Columbus, O., improved mode of adjusting carriage-tops.

William Bromwell, Newport, R. I., improved chimney-cap.

William M. Bullock, Marcy, Ind., improved machine for dressing felloes.

John Broughton, Chicago, improved feed motion for shingle machines.

Ebenezer Coleman and Philemon Coleman, Philadelphia, improvement in heading bolts.

John G. Coates, Big Lick, Va., improvement in dentists' forceps.

Abraham Casey, New-York, improved saw set.

Joseph S. Foster, Buffalo, improvement in reefing ships' sails upon extra yards.

John Feix, San Francisco, improvement in granulating metals.

Edmund H. Graham, Manchester, N. H., improvement in fire-arms.

William Gage, Buffalo, improvement in harvesters.

George W. Hatch, Princeton, Ill., improvement in the preparation of hides for tanning.

George Kenny, Milford, N. H., improved mode of attaching shafts to sleighs.

Harvey Law, New-York, machine for cutting paper.

J. W. Mahan, Lexington, Ill., improved carpenters' bench.

A. Newbury and B. Newbury, Windham Center, N. Y., for printing-press.

Albert Pease, Weston, Vt., improvement in churns.

W. B. Parrott, Boston, improvement in locomotive and steam boiler furnaces.

Edwin A. Palmer, Clayville, N. Y., improved clevis.

Pascal Plant, Chicago, Ill., improvement in riding-saddles.

Charles H. Reynolds, Lewiston, Me., improvement in variable cut-offs for steam engines.

Benjamin G. Shields, Martin, Texas, improvement in cotton-pickers.

Philo O. Sherwin, Jamestown, N. Y., improved shingle machine.

George W. Tolhurst, Cleveland, O., improvement in harvesting machines.

David D. Tupper, Boston, Mass., improved shingle machine.

John B. Wickersham, New-York, improved construction of iron fence posts and ties.

Jesse Whitehead, Manchester, Va., improvement in self-acting rakes for harvesters.

Jos. Adams, of Cleveland, improved fire-arms.

Henry Brad, of Greencastle, Ind., improvement in brick machines.

Wm. Bennett, New-York, improvement in grid-irons.

George W. Coppernoll, Ohio, N. Y., improvement in locks.

W. D. Cummings, Washington, Ky., improvement in self-heating smoothing-irons.

Mills P. Espy, Philadelphia, improved mode of hermetically sealing bottles.

David H. Fowler, New-Orleans, improvement in steam boilers.

John Fidler, New-Albany, improvement in journal-box alloys.

Marcus Frisbie, Rensselaerville, improved windmill.

Isaac Gattman, Philadelphia, improvement in mixing wheat flour with paints.

John Greenleaf, Lowell, improvement in machines for softening leather.

Jos. A. Hill, Greencastle, Ind., improvement in brick machines.

Daniel J. Kellogg, Rochester, photographic instrument.

B. Kuhus, Dayton, O., and M. J. Haines, Delaware City, Del., improvement in seed-planters.

Sam'l J. Lewis and Wm. Alston, Bordentown, N. J., improvement in saw-gummers.

G. R. McIlroy, Oakdale, Ind., improved portable fence.

S. G. L. Morrow, Linn., Mo., improvement in excavators.

M. M. Manly, South Dorset, Vt., improved machine for sawing marble in taper form.

John Percy, Albany, improved steam wagon.

Jos. Pyle, Wilmington, Del., improvement in machines for finishing leather.

John M. Riley, Newark, improvement in means for lubricating the sheave-pin of ships' blocks.

John M. Riley, Newark, improved mode of attaching hubs to axles.

Luther Robinson, West Cambridge, Mass., improvement in cultivators.

John Robingson, New-Brighton, Pa., improvement in locomotives for roads, etc.

Benj. D. Sanders, Holiday's Cove, Va., improvement in many-wicked candles.

John F. Seaman, Wolcott, N. Y., improvement in seed-planters.

Isaiah Rogers, Cincinnati, improvement in bridges.

Amos Stocker, Rome, improvement in tailors' measures.

Asbury M. Searles, Cincinnati, improvement in steam boiler grates.

Stephen F. Summers, St. Louis, improvement in trunks.

Samuel Thomas, Allentown, Pa., improved ore washer.

David B. Tiffany, Xenia, improvement for putting pillows and bolsters into their cases.

Thomas Varney, San Francisco, improvement in hydrocarbon vapor lamps.

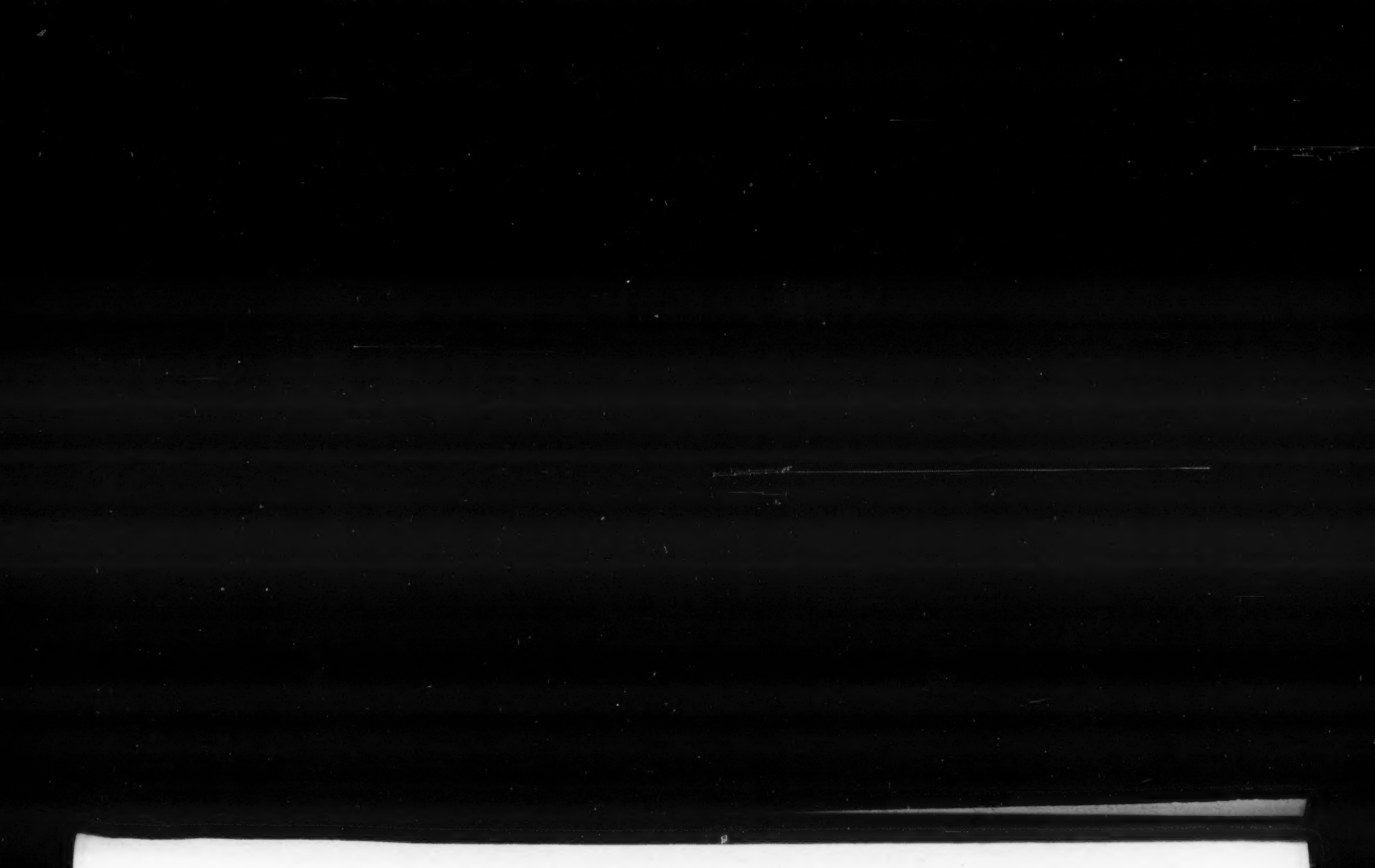
Samuel Wetherill, Bethlehem, Pa., improvement in furnaces for zinc white.

O. D. Wilcox, Easton, Pa., improvement in artificial legs.

Richard Wells, Baltimore, improvement in furnaces.

Joab Buck, Fitchburg, Mass., assignor to Joab Buck, H. S. Buck, J. W. Kimball, and D. H. Thompson, improvement in disconnecting railroad cars and applying brakes.

Henry F. Shaw, Woburn, Mass., assignor to H. F. Shaw and George F. Shaw, of same place, improvement in regulating valves for steam engines.

Henry Walsh, Philadelphia, assignor to Henry Walsh and M. N. Espy, of same place, improvement in machines for separating green corn from the cob.

James Wallace, Jr., Glasgow, North Britain, improved use of the dash-wheel for washing and bleaching. Patented in England June 26, 1855.